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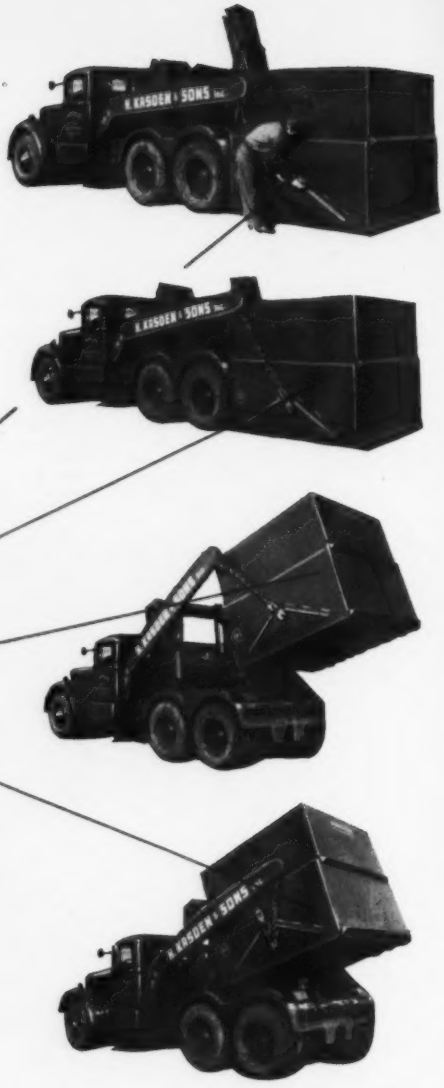

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Connecticut INDUSTRY

MANUFACTURERS' ASSOCIATION OF CONNECTICUT, INC.

VOL. 30 - NO. 5 - MAY 1952

L. M. Bingham, *Editor*

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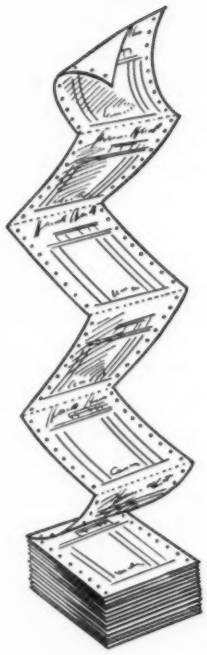

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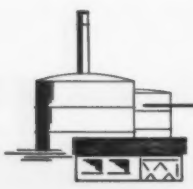

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A Clear Duty

By NORRIS W. FORD, *Executive Vice President*
The Manufacturers' Association of Connecticut, Inc.

TO THE average citizen, it seems to be one of the most difficult tasks in the world to sit down and write his Congressman a letter, no matter what the subject. Indeed, most people will refuse to do it except in the unusual case where the strength of their convictions becomes so great as to overpower their natural reluctance, inertia and reserve.

We were therefore tremendously impressed by the very large number of Connecticut citizens who, in recent months, have felt so strongly about the way in which the federal government is plunging deeply into debt that they have taken the trouble to write to their Representatives in Congress in protest against it.

We have been privileged to receive copies of scores of such letters, all of which are written in a vein which shows unmistakably the deep earnestness of the writers. Let's let the letters speak for themselves, as typified by excerpts culled from eight letters at random.

1. "As you know, our Government has been spending beyond its income for several years. As you also know, you could not do that yourself. I cannot, nor can our Company. Therefore, we ask you to do everything within your power to stop unnecessary spending whether it is for our district or for so-called 'European Aid.' Let us not spend any money for anything that we don't really need."

2. "I consider it of the utmost urgency that you, as an elected representative, endeavor to follow the will of those people you represent, and as one of those people, I would like you to devote your best efforts to immediate and drastic reduction in Federal expenses."

3. "In Winsted, in Litchfield County, in the State of Connecticut, I am urging now and asking everyone I know to urge the elimination of federal subsidies. Let's pull our own weight in our individual communities. Let's make do and do without for a change, and see if our help in the problem will serve to reduce the outlandish and exorbitant budgets which seem to have such ready acceptance in some quarters in Washington."

4. "I believe a serious attempt should be made to reduce our expenditures, both civil and military, so that our budget will be in balance with our income. Don't misunderstand my position in wishing to build a strong America. This I heartily support! It seems strange to me that this country can't make a sincere effort to live within its means."

5. "If we are not going to be entirely swallowed up in the quicksand of Socialism, we must take immediate steps to halt reckless government spending and to make a substantial reduction of taxes."

6. "It is obvious to any school child that no one can continually spend more money than one receives, and it is only a question of time and available resources before such an individual goes broke. Why this same type of thinking does not equally apply to the U. S. A. and its financial condition is beyond me. I trust that you will support the economy program to the utmost of your means."

7. "This year you will have the chance of a lifetime in promoting the best interests of your country not only at the present time but for generations to come, i.e. by using your influence in Congress to demand and vote for economy in government. This does not mean lip service but actual 'Honest to God' effort and determination on your part that savings can and will be made in the administration of the Federal Government."

8. "We believe sincerely that the extremely high rate of spending on the part of our government is weakening our country and damaging our American way of life in a manner and to a degree that even may be causing the Communists to feel that they are reaching all their desired goals in our country without so much as lifting a hand in direct military opposition to us."

These and other letters we have received are just a trickle compared to the flood of similar correspondence which Congressmen from every state report they are getting. Unquestionably, these letters from back home are chiefly responsible for the action of the House of Representatives in slicing more than six billion dollars from the 65.9 billion dollars in appropriation bills it has acted upon to date.

As this is written, the Senate is just beginning to take up the appropriation bills for fiscal 1953 and it may fairly be assumed, we think, that what they do with them will largely depend upon the wishes of their constituents. Under these circumstances, we believe that it is the clear duty of every citizen who is convinced that the spending policies of the national government should be abandoned to express his conviction to his representatives in Washington at this critical time.

A VIEW looking east at the Taylor & Fenn foundry. The building on the right is used exclusively for pattern storage. Railroad cars go directly underneath the crane shown on the extreme left.

118 Years

AT THE TAYLOR & FENN COMPANY

THIS article in *Connecticut Industry's* continuing series of stories about the origin and growth of Connecticut industries sets forth The Taylor and Fenn Company's past contributions to the machine tool industry and its present capacity to serve users of grey iron castings in any branch of manufacture.

DURING the first 200 years of Connecticut settlement, tools and implements were made entirely by hand. It may seem odd to inquiring minds why man failed to develop anything but a few crude power tools before the beginning of the American revolution, but historical research discloses a number of logical reasons. The three principal reasons were: The difficulties of transportation, lack of money capital, and the colonial restrictions on manufacturing. Even when these difficulties and restrictions were removed, there was a lack of initiative by the mechanical minded, largely due to insufficient protection of their interests.

With the passing of the U. S. patent laws there came a tremendous interest in the development of machine tools. The mechanical genius was encouraged to develop his ideas, and such men as James Watt, John North, and Eli Whitney were typical of the men who provided the stimulus for increased production. In about 1800 the application of interchangeable parts to large scale manufacture was introduced, and insured the successful development of manufacturing as we know it today. This was a potent influence in the building of the machine tools which relieved the skilled worker of much of the tedious hand labor involved in the making of uniform precision parts.

The Taylor & Fenn Company Organized

It was in this era of rapid transition from hand to machine methods, that the company now known as The Taylor & Fenn Company was launched in 1834 by Levi Lincoln. He had come to Hartford in 1832, as agent and general manager for the New England Card Company, which made cards used in the manufacture of cotton and woolen goods. While there, he developed a machine which forever put an end to the hand labor that had previously given home work to some 900 women and children working at odd times setting the wire teeth of the cards.

Acquiring a building, which was formerly a water-powered woolen mill located on Arch Street in Hartford, Conn., Mr. Lincoln started his own business of manufacturing cast iron gates for molasses barrels. This, his own invention, soon displaced its wooden predecessors to such an extent that in 1840 he decided to expand and take into the organization his two sons, George S. and Charles L. Lincoln. The company name was then changed to George S. Lincoln & Company but the plant was generally known as The Pheonix Iron Works.

A machine shop and foundry was built on part of Thomas Hooker's house lot and the company began producing its own castings, the bulk of which had previously been made at the plant of Alvin Hyde & Company, Stafford, Connecticut. This expansion marked the real beginning of the foundry business and at the same time launched the company into the manufacture of machine tools.

From Molasses Gates to Machine and Special Tool Manufacture

In addition to manufacturing molasses gates Mr. Lincoln used his genius to produce special machines for The Cheney Brothers and other silk mills in the area, and also special equipment for textile and paper mills. In the 1840's the company began to concentrate its activities in the building of machine tools required by the metal working industries.

At about the same time Levi Lincoln invented a machine to manufacture hooks and eyes, from the production of which the company built up a substantial business until that portion of it was sold to North & Judd of New Britain, Connecticut, in 1860. In 1846, Levi Lincoln again demonstrated his inventive versatility by working with

A VIEW of the mixing ladle in front of one of the cupolas. Note large crane ladle in the pit.

William Rogers in the development of the electroplating process, later used by the Rogers Brothers in the manufacture of their silverware.

By 1855, or the year after the world famous Colt's armory was completed, The George S. Lincoln & Company was well established as a builder of such machine tools as lathes, planes, punch presses, milling machines, gear cutters, and drilling machines. It took a prominent part in the construction of the machine tools installed in the Colt plant and helped to equip the northern armories during the next decade.

While the machine tools were being developed another brother, Theodore Lincoln, came into the business bringing with him the idea of making iron fences and other ornamental and architectural iron work. The foundry manufactured these new items in substantial quantities, along with fire escapes, for some fifteen years following Theodore Lincoln's death, which occurred shortly after the Civil War.

Upon the retirement of George S. Lincoln, the management of the company passed to Charles L. Lincoln and his two sons Charles and Theodore II, and the name was changed to Lincoln & Company.

After passing through the difficult and unprofitable period of the 90's the company was incorporated as the Phoenix Iron Works Corporation in 1901 by a group headed by the late Charles L. Taylor, who was the great grandson of Levi Lincoln, its founder and also the father of its present president, James A. Taylor. Other members of the group consisted of J. H. Kelso Davis, Edward D. Redfield, and Walter L. Goodwin. In 1907 W. L. Fenn joined the company as superintendent and the name was changed to its present title of The Taylor & Fenn Company.

From 1870 to 1907 several machine tool plants had been established in various parts of the U. S., many by mechanics trained in New England and particularly in the Lincoln and Pratt & Whitney factories. Despite the tremendous growth of the industry the company continued to be a prominent factor in the manufacture of drilling machines, vertical millers, duplex spline milling machines, spring presses, wet tool grinders, hydraulic internal grinders and special machinery. Its foundry continued to expand and modernize, establishing an excellent reputation for producing castings of exceptional quality.

The Business Takes a Turn

In 1950 The Taylor & Fenn Company officials decided to sell their machine tool line and concentrate all of their efforts in the production of superior laboratory controlled grey iron castings. In this branch of manufacture the company already was a leader with more than a century of experience. Management decision to change its course was formed by the thought that it was wiser to continue to be a leader in one line of manufacture than to trail leaders in an industry that was likely to dip to an unstable low in periods of recession.

As a result of this decision the company began to concentrate all of its "know-how," accumulated for more than a century, toward the production of the finest grades of cast and alloy irons that were commercially available. Immediately plans were made to build a modern plant in Windsor, Connecticut, which was completed and occupied in 1951. As its 100,000 square feet of floor space was designed solely for a foundry operation, no single modern tool or facility for the production of grey and alloy iron castings has been overlooked.

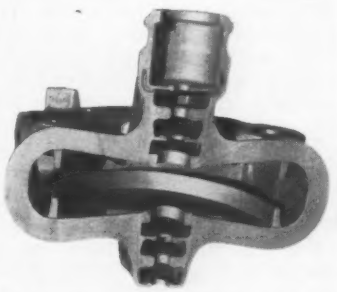
As the foundry produces all types of castings, dry or green sand molds and in quantities of one to thousands, it has necessarily acquired for its new plant the most modern equipment available for versatile molding.

For employees, it has provided modern lockers, wash rooms and showers and a fine cafeteria. It has its own laundry where work clothes are washed and dried daily. In an effort to protect its employees, The Taylor & Fenn Company provides the best known appliances and safety measures, augmented by a modern first aid room.

The company produces its castings in an amazingly self-contained plant which depends very little on outside facilities. It has its own pattern shop where patterns may be made, altered or repaired without the delay that usually results from sending work outside. For the benefit of its customers interests, the company has erected a building, entirely separate from the foundry, where patterns not in use are stored under a sprinkler system, thus giving full protection against the hazards of fire.

A modern laboratory keeps a daily check on both chemical and physical properties of the irons in process. To insure sound castings radiographs are taken of castings, and the films developed and interpreted in the laboratory.

Two oil fired ovens are used to anneal or stress relieve castings when



THE INTRICACY OF molding is shown in this single wheel steam turbine case.

necessary to meet a customer's requirements. For the production of castings there are jolt squeezers and rollover machines for production molding, ranging from the smallest to 3,000 lbs. capacity. Skilled molders and coremakers are available to produce loose and intricate bench work. A side floor provides ample room to take care of any patterns that are too large for the benches to handle. For extremely large castings the company has a crane floor capable of handling castings made in either green or dry sand and having a capacity up to four tons. To promote sound castings of pleasing appearance the sand department holds its various mixes to rigid specifications by regularly testing the moisture, strength, and permeability of its sands with equipment provided especially for this purpose.

There are three large core departments. The first is equipped to make large cores and dry sand molds. The second, equipped with two core blowers, provides the small and intermediate cores. The third has a twofold purpose: (a) To make cores for pressure work such as vacuum pumps, diesel engine liners and heads, manifolds and other castings that require jackets or intricate cores; (b) to produce in dry sand any castings that require precise core assembly or have rigid specifications.

To melt the various grades of iron The Taylor & Fenn Company has four large Foxboro controlled cupolas, and scales for weighing both ingoing charges and molten metal. Modern charging methods do away with the strenuous hand labor of an earlier period.

Cast Iron Today

Cast iron, the first of the ferrous metals to be cast, has for some two centuries had a place of great importance in the industrial world. It was not, however, until well after the close of the nineteenth century that the making of castings became more of a science than an art. Once used because of its low cost and castability, grey iron has been so improved during the past years that it is now considered an excellent engineering material. Years of both failures and good performance of castings in the field have taught The Taylor & Fenn Company that by controlling the size, amount, and distribution of graphite, cast iron can be produced in various strengths, ranging from 20,000 to over 60,000 lbs. per square inch.

Strength, hardness, deflection, resistance to heat and corrosion, magnetic response, damping qualities and scaling all may be controlled by the addition of various alloys. Cast iron has excellent damping capacity. The energy absorbed is in the range of ten times that of steel. In a sliding friction application or when used as a bearing material, grey iron is considered excellent because of the graphite it contains.

Ni Resist and Ductile Irons

The function of a foundry such as The Taylor & Fenn Company is not complete without the ability to cast the group of high nickel cast irons known as Ni Resist. This company has the distinction of being one of the first foundries in the country to produce successfully Ni Resist in a cupola on a commercial basis. As a licensed producer of this widely adopted metal The Taylor & Fenn Company casts thousands of pounds annually for those who wish to take advantage of the unusual combination of properties, such as resistance to heat and corrosion, good machineability, high electrical resistance and by suitable choice of the nickel content, non-magnetic characteristics and high or low thermal expansion.

Ductile Iron is another comparatively recent and revolutionary metallurgical development that is available to customers of the company. Long past the pilot stage, Ductile Iron is a ferrous product which combines the process advantages of cast iron with many of the physical properties of steel. There has been a tremendous interest in the engineering field in replacing, with Ductile Iron, parts manufactured previously of other materials and methods such as bronze, malleable iron, steel and forgings. Again, The Taylor & Fenn Company stands out as being one of the first foundries to produce and develop Ductile Iron under the patented formula rights of The International Nickel Company. Its con-

stant research in producing this new metal has convinced the company that Ductile Iron will ultimately find a wide place in the manufacturing field.

As a result, an entirely separate building is devoted only to casting this revolutionary material, and to date, the company offers to its customers two types:

90,000 lbs. tensile—60,000 lbs. yield and 2 to 5% elongation, and 60,000 lbs. tensile—45,000 lbs. yield and 10 to 15% elongation.

Behind the Scenes

Let's have a look behind the scenes at The Taylor & Fenn Company plant to discover what happens after a customer has decided to order some one of the many types of grey or alloyed iron castings. For the purpose of illustration let us follow an order received when only a machine drawing is sent along with it.

The machine drawing first goes to the foundry superintendent where he, the pattern maker, and other key personnel examine it carefully to determine if any changes in design may be possible to insure a better casting. If any such changes are recommended they are suggested to the customer, and if approved, they are incorporated into the making of the pattern.

After the plans for casting, gating and making the pattern have been approved, the pattern maker produces the pattern and coreboxes to conform to the machine print, plus finish, where required. Upon completion of this work, a copy of the initial order, with instructions on the type of metal to be used, is attached. The original order and cost cards, with full detail, are then filed for future reference.

Following the marking up stage the coreboxes are sent to the core room and the pattern placed in racks designated for work to be cast. The coreroom foreman, upon completion of the cores, attaches a green tag to the corresponding pattern to indicate that the cores are made, baked and ready for use. Guided by his delivery schedule, the foundry foreman gives the pattern to the molder with careful instructions on the "gating" and "risering" methods decided upon at the first conference.

Upon receiving the pattern the molder produces the mold from a specially prepared moist sand. After withdrawing the pattern he sets the baked cores into special recesses in the mold which, in foundry terminology, are called "coreprints." The mold is then closed, secured, and placed on the molder's floor ready to receive the molten metal.

At The Taylor & Fenn Company's foundry, the iron is melted in any one of four cupolas. Each cupola consists of a vertical steel cylinder lined with a refractory material, which is provided with openings for air under pressure to enter the cylinder. Alternate charges of coke, iron, and limestone are placed in the cylinder, in proper predetermined quantities. By forcing air through the charges the combustion of the coke melts the metal and the iron drips through to the well, or hearth, at the bottom of the cylinder from where it is withdrawn.

Since the composition of each charge determines the type of metal obtained one can readily see that close control is necessary to obtain consistent and uniform results. Each grade of iron is analyzed every day and the charges held to close chemical specifications, determined by the metallurgical department. Through such rigid controls the company is able to meet the requirements of the most discriminating buyers of castings.

The molten metal may be treated as it is withdrawn from the cupola with the various elements such as nickel, chromium, silicon, molybdenum, copper or others which may be required to meet the exact specifications for alloyed irons. For small castings molten iron is withdrawn in large bucket-like ladles and transported by towmotor to the locations of the molds. It is then transferred to the molders smaller hand ladles, from which the metal is poured into the molds. The larger castings are poured by overhead cranes which transport the iron directly from the cupola. During the pouring period adequate supervision is maintained to insure that the proper iron is poured into each mold.

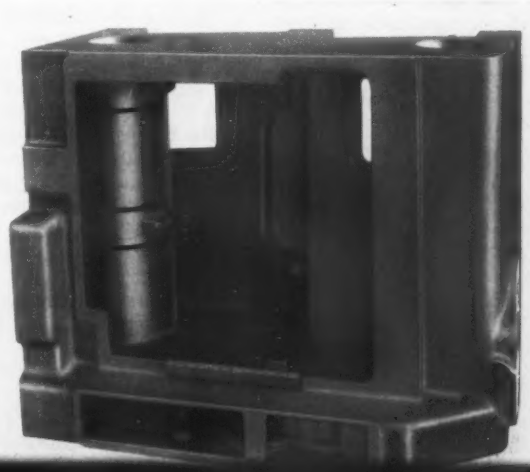
After the metal has solidified and cooled sufficiently, the molds are dumped or shaken out, and the castings sent to the cleaning room where they are blasted with shot to remove sand and scale. They are then ground or chipped to remove any excess metal such as "gates" and "risers." The completed castings are sorted. Those requiring heat treatment are sent to the heat treating department, and the others direct to the shipping room, where they receive a final inspection.

Shipment and Storage Facilities

The Taylor & Fenn Company is located on a twenty-two acre plot of land, part of which is accessible to the Connecticut River. A spur track from the main line of the Springfield branch of the New Haven railroad, to the company's shipping platform and storage, facilitates both incoming supplies and outgoing shipments of castings. There is ample room for both recreational facilities and for the parking of cars, as well as for any possible future plant expansion.

Despite the company's 118 year history of contributions, first to the machine tool industry and later to the foundry industry, the management looks forward to still greater service it may render its customers in the future with its new and modern plant facilities. Regardless of the rising tempo of change in this atomic age, the management of The Taylor & Fenn Company is confident that the same meticulous care, exercised in the past by its skilled and loyal workmen, combined with honest dealing, will assure even greater satisfaction to its customers in the years ahead.

The present officers responsible for the immediate future of the company are: James A. Taylor, president; William W. C. Ball, vice president and general manager; Halstead W. Hull, secretary and treasurer; and Robert H. Dart, assistant treasurer.



FOREMEN completing the three week Foremen's Orientation Course, now conducted at the Southington plant of Pratt & Whitney Aircraft, discuss the finer points of employee relations, wage rates, etc. by the group method. Addressing the class is John H. Phelps, Jr., conference leader. Left is Calvin S. Smith and the other foremen, left to right, Leonard LaBarbera, Robert Cowing, Walter Kupfer, Joseph Kemish, Charles LaFrancise, Howard Griffin, Joseph L'Heureux, Henry Jorgenson, Robert Sorenson, and Benjamin Kvietkauskas.

INDUSTRIAL TRAINING IN THE AIRCRAFT INDUSTRY

By W. B. S. CLYMER, *Supervisor of Training*, Pratt & Whitney Aircraft, Division of United Aircraft Corporation, East Hartford, Conn.

EDITOR'S NOTE: In these days when the demand for many specialized skills far exceed the supply, the aircraft industry has been forced to find efficient methods of teaching them. In this article, prepared by Mr. Clymer at the request of *Connecticut Industry's* editor, the outlines of various types of training are clearly drawn with a view of assisting other companies who may wish to inaugurate training programs.

I. The Need for Training

CONNECTICUT industry is faced with a shortage of skilled labor. You can't get trained men today just by advertising for them. One solution to this is training by industry. But while industry executives as a group recognize the need for specialized training to cope with the present shortage of labor and to supply a source of trained men for the future needs of industry, only the larger companies seem to be actively doing much about it. Smaller firms appear to regard formal training as an unjustifiable luxury.

In the aircraft industry, however, because of its peculiar problems and its abrupt and frequent changes, training is virtually an essential. Here there is no standard, specified product, no 1952 model which will be in production until next year's comes along, but rather scores of engineering design changes every day, and resulting production changes. This means that our foremen, leadmen and operators must be a good deal more flexible than their counterparts in most other industrial concerns. Moreover, we are working in an expensive medium and our time allowances are always too short. Training attempts to give our personnel not only the *how* of their job but also the *why* so that they can make these changes rapidly and effectively.

The increased complexity of the foreman's job throughout industry also calls for special knowledge which was seldom needed a few years ago. His operating procedures have been complicated far beyond those of his predecessors, and in addition he has to cope with constantly increasing and changing administrative problems, which he did not have at all ten years ago.

At the present time, the need for training has been accentuated by the fact that this country is now attempting to sustain for the first time a "guns *and* butter" economy and has thus put a drain upon the labor market such as has not been seen since the war. Industry has also been hurt by the drastic curtailment of the once common apprentice programs, which were carried on in almost all the trades prior to World War II. In short, the availability of really skilled labor is probably lower today than it has ever been.

II. Training for Normal Operation

Training is nothing new to Pratt & Whitney Aircraft. Even when our activities were far less hectic than they

are today, the company was carrying on extensive training work. Normally, for instance, we conduct continuing supervisory training programs under which foremen, general foremen, supervisors, and department heads are given the opportunity to attend conferences for one hour each week in groups of twelve to fifteen. In these sessions, company policies, the principles of industrial organization, labor laws, wage plans, human relations, the handling of grievances, and many other subjects of immediate concern to the shop supervisor or department head are discussed and explained. In these meetings, care is taken to make each group as complete a cross section of the entire organization as possible so that men can see what problems are being encountered in other departments or in other parts of the plant. Apprentice programs have been run for a number of years and have provided us with many of the toolmakers and machinists we need to do work requiring the highest type of skills. Upgrading programs have been conducted to assist men to obtain promotions, and as new processes were introduced, new courses were added to train men in them.

III. Training for an Emergency

The aircraft industry has been called upon from time to time to accomplish extraordinary increases in its output, and at these times it has been necessary to increase both the volume and the tempo of training. Presently, we are in one of those urgent periods, and our training programs have been increased accordingly. The Training Department of Pratt & Whitney Aircraft is now a completely integrated school system which might be said to teach every grade from kindergarten through college. In other words, we have courses so designed that (1) a relatively inexperienced new employee can be taught to do a simple shop job competently in a minimum of time; (2) a more experienced employee can be given the qualifications he needs for upgrading to a more responsible or more skilled job; (3) the skilled employee can take on the responsibilities of a leadman; (4) the leadman can be trained to become a foreman; and (5) the foreman can be kept up-to-date on current changes, new methods and modifications of policy.

The supervisory training programs, which normally call for an hour a week in the classroom, have now been put in many cases on a full-time basis so that a foreman may attend a training course for as much as three solid weeks. A course of this length would require almost three years normally, and probably would not be nearly so effective: first, because of the sheer length of time involved and second, because when a foreman is preoccupied with his shop responsibilities he is not able to put his full attention on the training which he is being given and therefore does not retain as much of it. We have gained much by relieving our foremen of all their regular responsibilities during such training periods.

STEVE KOROPATKIN, center, who recently finished a three-weeks' course in sheet metal working at the Pratt & Whitney Aircraft machine training school in Hartford, gets some pointers on hand-rolling sheet aluminum into cylindrical form from Instructor Norman Waite, left. Grover I. Mitchell, supervisor of the school, listens in.

Our upgrading programs likewise have been increased and condensed at the same time. Prospective leadmen, for instance, are given six weeks of full-time intensive training before they are put on the job, and the need for more skilled men in the experimental and semi-production departments has made necessary full-time training courses for such employees running as long as six months. These men we have to train ourselves. We have no choice. They cannot be hired from the open market.

Effective on-the-job training for new employees is virtually impossible at a time when the need for expansion is so great. To attempt such on-the-job training at such a time is to be almost totally ineffective because the men who know how to produce would be completely swamped trying to teach the new ones. Spoiled work obviously increases and reduced efficiency becomes a problem to which there is no quick solution. Our experience is that the best way to beat this is to set up a formal training activity outside of the production area where competent instructors can spend their entire effort in seeing that their trainees are learning their jobs. In this way, the production men can concentrate on production problems, and we are able to provide the shop with new employees who need to be shown little more than where their work is before they start to produce. It is easier in such a school to relieve a new employee of his fear of machinery and his anxiety about tackling a new job in a strange place. Here, too, we can pay more attention to proper indoctrination and morale-building which is a real problem in the operating shop. We believe these advantages alone are worth as much as the training itself.

There are many things which a new employee coming directly into a strange shop, particularly if it is a large one, will have to learn the hard way. Most of these we can anticipate in the school and can give him the answers before he is confronted with the questions. This, of course, materially increases his confidence not only in himself but in his company as well and makes him a better worker from the beginning. It also decreases the likelihood that he will become discouraged and leave during his break-in-period.

(Continued on page 56)

The American Code of PERSONNEL ADMINISTRATION

By THOMAS G. SPATES, *Professor of Personnel Administration*, Department of Industrial Administration, School of Engineering, Yale University

EDITOR'S NOTE: This article which embodies much of an address delivered at the Rochester Institute of Technology actually sets forth the principles, beliefs and practices of Mr. Spates during his many years of experience as personnel Vice President of General Foods Corporation. They are principles which he has stressed repeatedly in his addresses before many groups, including the Manufacturers Association of New Haven County at its annual meeting in February.

Among the many recognitions and assignments he has been given in recent years before becoming Professor of Personnel Administration at Yale in 1950, are: Recipient first Award of Merit, 1948, by New York Personnel Management Association for "outstanding achievement in the field of personnel relations"; has carried out executive and technical advisory assignments of both national and international scope; now serving on personnel advisory councils of the U. S. Atomic Energy Commission, Department of The Army and National Industrial Conference Board, and is a member of the Labor Relations Committee of the U. S. Chamber of Commerce; author of "Unemployment as an International Problem," "The Scope of Modern Personnel Administration," and "Unemployment Insurance in Switzerland."

THE PEOPLE of the United States who still cherish freedom are engaged in a crucial contest against socialistic collectivism from within, and totalitarian communism from without.

How well equipped are we for this greatest and most crucial contest in the history of our land? A look at the record, as revealed by study and travel during the past six months, discloses a serious crack in our national armor. It is revealed by the fact that the leaders of business and their representatives are proclaiming the virtues of free enterprise in terms of more telephones, bathtubs, radios and automobiles, while at the same time the leaders and representatives of employes are asking that workers be treated as human beings at the places where they work.

To those willing to face the facts of life it should be crystal clear by now that the real and ultimate strength of America will not be found in our ability to make more and better gadgets, including the atomic bomb.

How, then, do we close the wide breach in our defenses? The answer is simpler and far more powerful than any foreign doctrine yet proclaimed. It is to be found in the intelligent and consistent use of The American Code of Personnel Administration by more leaders of business, government and education. For there can no longer be any doubt about it . . . in this country, conversion to doctrines that have been, until recent years, foreign to our soil, starts at the places where people work, as a result of the way they are treated by their bosses at all levels of human organization.

What is this American Code of Personnel Administration that may well be the final bulwark of defense anywhere against these foreign doctrines? We will attempt to answer that question by exploring its philosophy, its history and its productive practices.

Philosophy

The origins of the philosophical content of this code are found in the minds and hearts of those courageous and God-fearing folks who headed west across the Atlantic more than three hundred years ago, with the common bond of hatred for the tyrannies of feudal barons and the divine rights of kings. Together they sought a land of freedom from oppression and autocratic domination in every form.

Ill will toward old time neighbors, national prejudices and ambitions, traditional fears, static standards of living, class rights and the demand of class—these were barred at the gates of the New World.

And it has been recorded that as the ships that brought them here headed back east in April following the mid-winter landing, not one of the colonists was aboard. . . . "So sweet was the taste of freedom even under the shadow of death."

They held and maintained the conviction that "the sacred rights of mankind are not to be rummaged for among old parchments or musty records. They are written as with a sunbeam in the whole volume of human destiny by the hand of divinity itself, and can never be erased or obscured by mortal power."

This philosophy found expression in the Declaration of Independence which proclaimed . . . "We hold these truths to be self evident, that all men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are Life, Liberty and the pursuit of Happiness."

This philosophy was implemented in the Bill of Rights by providing that Americans are free to speak without fear, free to worship their own God, free to stand for what they think right, free to oppose what they believe wrong, free to choose those who govern.

It is in the unique national environment erected upon the foundation of that philosophy that our American Code of Personnel Administration was established and has evolved.

History

The historical origins of this code are found in the minds and hearts of a few business leaders who believed that it was both nice and profitable to treat their employes like human beings. They

provided a work environment that was a confirmation of the Declaration of Independence and the Bill of Rights. Whether they knew it or not, they thereby made an incalculable contribution to the preservation of individual liberty and a democratic form of government, even though sometimes accumulating fewer worldly goods than some of their autocratic contemporaries. To those pioneer, personnel-minded proprietors and executives, and many who followed, we are indebted for the practical application of the philosophy of individual dignity and human rights to employment relations.

The development of this code to meet the needs of modern industrialized society started in the Pacific Northwest when, in 1911, the Supreme Court approved the Workmen's Compensation Law of the State of Washington. In the following two years, twenty additional states passed similar laws. They had the dual effect of injecting a little of the milk of human kindness into the employment relationship and adding to industrial organization its first specialist in personnel administration. A series of events, motivated by fear, imitation, economic pressure and administrative intelligence, added specialists in employment, medicine and training. The practices they developed and used for the purposes of reducing costs, using human resources more effectively and giving individuals greater satisfaction in the work experience, form some of the early chapters of the American Code of Personnel Administration.

At the time the modern version of this code started to take shape, industrial conflict in the United States was so widespread and intense that an investigation was made by a Commission of the United States Senate which, after two years of study, reached the following conclusion:

"The question of industrial relations assigned by Congress to the Commission for investigation is more fundamental and of greater importance to the welfare of the nation than any other question except the form of government. The only hope for the solution of the tremendous problems created by industrial relations lies in the effective use of our democratic institutions and in the rapid extension of the principles of democracy to industry."

So many leaders of business and education ignored the wisdom of that conclusion proclaimed 35 years ago by members of the U. S. Senate that when faith in some of our basic principles was weakened in the 1930's by severe economic adjustment, the people encouraged their political leaders to make profound changes, not only in our doctrine and system of government, but also in our philosophy regarding class distinctions and the dignity of work.

Only time will bring the final verdict; but there is much evidence in recent years to justify the fear that these changes have not enhanced our chances in this great and unexpected contest that has emerged from World War II.

Against that very brief and oversimplified background of philosophy and history, we will attempt to summarize the essential productive practices contained in this code. Each one supplies a basic need in the minds and hearts of people at all levels of organization. Their validity should be tested by your own experiences.

Practice

First in our American Code of Personnel Administration is the practice of high standards of character and morality, so that the institution itself, be it in business, government or education, stands as a source of inspiration which endows all other personnel practices with the qualities of honesty and integrity. This practice bestows upon the entire enterprise its spiritual heritage. You may rest assured that no less than 95% of all the people on the payroll prefer to be on a team that is sparked and motivated by high ideals. They respond with unbelievable enthusiasm and loyalty to daily manifestations of intellectual honesty and fair dealing throughout the organization. They like to work for a company which employs lawyers to see to it that the business is conducted within the law rather than to help circumvent the law. They like to work for a company whose advertising rings true without the compulsion of statutory regulations. They do not like to be asked or required to do things in the work experience that would compromise their conscience. This practice helps everyone on the payroll keep his chin up even when the going gets rough.

The *second* practice is to provide every one on the payroll with a written statement of principles of personnel administration, consistent with the philosophy upon which our nation was founded, and to act on those principles courageously in every situation. Employees are entitled to know, in writing, what standards of conduct top management sets for itself and requires of bosses at all levels, and they are equally entitled to know, in writing, what rights they have and what is expected of them. The importance of this practice is tragically illustrated by international events, such as repudiation of the Atlantic Charter which have their counterpart, in varying degrees, in employment relations. Practically all of the ills from which the world is suffering today may be attributed to compromise with principle. American democracy still symbolizes human freedom. Our power and prestige are in direct ratio to the energy and conviction of our fight to save this freedom at home as well as to extend it abroad.

Third is the practice of good leadership, motivated by high standards of administration rather than by expediency and exploitation. There are volumes of testimony and some scientific data to support the conclusion that the greatest single factor in the productivity of the individual is his mental attitude toward his boss. That conclusion applies to all levels of organization, and has to do with the sort of leadership that starts with the board of directors and the chief executive officer, and finally reaches the newest recruit on the payroll. It has to do with the sort of leadership that can come from the bottom to the top levels of organization when the channels of communication are really free. It is the sort of leadership that makes people feel that they are *on* the team and not just *with* it.

Fourth is the practice of good organization concept and structure that meets the following specifications, while taking account of tradition and personalities:

1. The purpose of the organization and each part thereof should be clearly defined and explained.
2. The span of control of everyone who directs the work of others should be kept within practical limits.
3. Every position in the organization should be prescribed in writing.
4. Formal authority and responsibility should be coterminous and coequal.
5. A clear and well understood line of authority should run from the top to the bottom of every organization.
6. The responsibility of higher authority for the acts of its subordinates is absolute.
7. Each unit of the organization and the supervisor thereof should be confined to the performance of a single leading function.

These are generally accepted specifications against which to test the sound-

ness of organization. You can be sure of trouble if they are violated. Most personnel practices are dependent upon sound organization for their maximum effectiveness. A good personnel program without a sound organization structure is like putting frosting on a poor piece of cake.

The *fifth* essential practice in our American Code of Personnel Administration is the designation of a well qualified person in the highest level of general management to specialize in solving the problems of people, and to help see to it that all the practices of the code are made effective. This person should be selected according to standards of personal and technical competence no less than those required of other important members of general management. Having a nice personality and liking people are inadequate qualifications for this tough spot on the management team. It calls for qualities of patience, perseverance, persuasion, performance, tolerance, integrity, and devotion to principle which are uncommon but indispensable for fulfillment of the American Code.

Another important factor in fulfillment of the code is the control aspect of this function of executive leadership and general management. How else, except through the exercise of positive controls combined with enlightened executive leadership, can employes be genuinely assured that the good intentions of management are going to be translated into actual experiences at the place of work? In the absence of objective and impartial controls, what protection do employes have against the unrestricted exercise of the faults and individual idiosyncrasies of bosses at all levels of organization? The answer to those questions, by twelve million employes in the past ten years, has been to seek help and leadership outside of the normal channels of organization. There is ample evidence to support the observation that no organization is too small to benefit from the services of someone, either full time or part time, who is trained in the skills of personnel administration.

Sixth is the practice of satisfying the desire for participation by means of consultation and explanation, both up and down, through all echelons of organization. If one were forced, under pain of severe punishment, to express the essence of sound personnel administration in just two words, those words would be "Consultation" and "Explanation." The acts implied by those two words influence greatly the attitudes of people and their response to the decisions that have to be made in the conduct of business. Even though decisions are, of necessity, sometimes unpopular, the negative consequences can be lessened by answers to the question "Why?" Many an industrial conflict has been precipitated by the bulletin board notice, with inadequate explanation, announcing changes affecting the lives of people regarding which there was no advance consultation. The importance of consultation on the morale and spirit of people is well illustrated by the following quotation:

> "Of all the dull, dead weights men ever bore, none wears the soul with discontent like consciousness of power unused."

There is a terrific psychological impact upon people at all levels, in the practice of consultation and explanation. In many instances it can make the difference between individual creativeness, and sabotage.

Seventh is the practice of keeping everyone on the payroll informed on all matters affecting their interests. Recently at a United Nations meeting the British dared the Russians to lift the iron curtain. After all, what is the paramount significance of the iron curtain? It serves as a barrier to communication. That's what makes it of vital importance in world affairs. Barriers to communication generate fear, suspicion and mistrust which poison the wellsprings of good will and collaboration, and provoke the counterattack of gossip, rumor, intrigue, sabotage and conflict.

The practice of keeping people informed involves all the media of communication, both oral and written. Like other productive personnel practices, it is indispensable to the attainment of maximum results at minimum cost.

Some of the written media of communication are: standard practice procedures for all functions of general management, the rules of the game which take the form of manuals and handbooks of information, periodic reports and news letters on the affairs and problems of the business, prepared at various levels of organization and sent to the homes of employes to include the family on the team.

If the leaders of business would follow this practice they would have less cause for complaint regarding the distorted notions employes have on the size of profits and other aspects of mutual interest inherent in employment relations.

Eighth is the practice of encouraging freedom of expression of points of view and attitudes without fear of reprisals. At all levels of organization, blocks arise which prevent people from giving voice to their genuine feelings. These blocks are like plugging the safety valve of a boiler and adding more fuel to the fire. An effective grievance procedure is one of the remedies. Firing of bosses who are in the wrong (when all other measures have failed) will help to convince employes that they can speak their piece without jeopardizing their job security.

Ninth is a total work environment that appeals to the self respect and dignity of the individual. This practice has to do primarily with every aspect of physical environment. There are ample illustrations, some of which are almost spectacular in their effect upon the work habits of people, to justify the expenditures necessary in meeting this fundamental need.

The *tenth* practice is sympathetic consideration of people's trials and tribulations. In the efforts made to improve personnel administration, emphasis has been placed over the years upon training supervisors to handle the problems of people working under their direction, but little or no effort has been made to provide for the sympathetic consideration of the problems of those in the various levels of supervision. The classic example of both the emphasis and the failure is in the field of industrial foremanship. For twenty-five years industrial executives have been spending a lot of time and money trying to sell foremen the idea that they are management's first line representatives and the key men of industry. This theme is not only a denial of the fact that the only real key man of industry is the chief executive officer, but the actual experience of foremen has been a contradiction of the proclaimed management status. Foremen have been taught so much more good than they are permitted to put into effect by their bosses that many of them have given expression to their resentment and frustration by joining unions. Dramatic confirmation of these observations is contained in the following statement recently made by Henry Ford II . . . "but I find it difficult to criticize our foremen for joining the union because, frankly, I doubt whether in the past very many of them were actually considered or treated as part of management."

Eleventh is steadiness and certainty of employment. It is the psychological

rather than the financial aspect of this practice that justifies its inclusion here.

Twelfth is a plan of promotional opportunity. This practice is not fulfilled merely by the statement of a policy of promotion from within. People like to have the answer to the questions "Where do I go from here?" and "By what route?" The necessary requirement for the fulfillment of this practice is sound organization planning and structure.

The *thirteenth* practice is equitable wage and salary structures that recognize differences in job and position requirements, as measured by such factors as knowledge, skill, difficulty and responsibility. A great deal has been done in applying the techniques of job description and rating to the lower echelons of organization. Relatively little has been done in the higher echelons of organization, where it is quite likely the greatest inequities exist and where the morale effect of these inequities is of costly importance in terms of managerial dissatisfaction. This practice satisfies the need for internal justice in salary administration.

Fourteenth is a training program designed to help everyone perform, in the best known ways, the tasks that are assigned for the attainment of stated objectives. When things go wrong in any one or all of the many functions of general management, investigation has shown that over 80% of the errors and failures are due to people who either *DONT KNOW, CANT DO,* or *DONT CARE.* Training is the only known method that will fill the gaps in knowledge, skill and attitudes that cause things to go wrong at all levels of organization. There is a lot of training going on in business at the lower echelons, but very little that is aimed at the target of improving the competence, in human relations, of those in the higher echelons.

Fifteenth is recognition—in many ways—including some of the foregoing practices, but particularly through individual evaluation so that it may be said to each person on the payroll—HE IS PREPARED WITH WHAT TO GO WHERE. This practice is designed to answer the question: "How am I doing?" From time to time everyone on the payroll, regardless of position, wants to know how he is getting along in the judgment of the boss, whose attitude has such an important bearing upon his destiny. Most everyone can judge for himself how he is getting along with respect to the execution of an assigned task, but the more important interest is in the area of relationships with other people. There are all too many instances in the experience of people at work when, at middle age, and after long years of service, they are shocked by the news of their inadequacy and termination, without having ever experienced a periodic and systematic review of performance and a statement of "How he was doing." These are inexcusable instances of individual human tragedy which have reflected discredit upon the executive leadership of entirely too many companies.

Sixteenth and last in this summary of productive personnel practices embodied in the American Code of Personnel Administration is the spirit of friendliness which is the essence of all good human relations and which should be diffused throughout the organization like the sunlight that pierces the clouds or casts a pattern of light and shade through the woods in autumn time.

Manifestations of this spirit are the unrestrained smile of recognition, the cheerful greeting, the word of praise, the will to listen, the serious consideration of the other fellow's interests and points of view.

Conclusion

Are you aware that in those sixteen essential practices of sound personnel administration there is no reference at all to either absolute wages or benefit plans? The reason is this. Not only does the source of sound personnel administration reside in the conscience of leaders, but it is primarily concerned with the spirit and the hearts of people. Those are qualitative factors. History offers no evidence that quantitative methods and rewards have ever provided the solution to qualitative problems. As the scientist would say . . . the law of diminishing returns applies to quantitative methods but not so to the qualitative.

Now let's focus the results of our exploration of the origins and practices of the American Code of Personnel Administration into a few concluding observations. This code is composed of the philosophy, the motives and the methods of *organizing* and *treating* people as individuals at all levels at the places where they work, so that they will achieve and give the best that is in their heads, their hands and their hearts, while getting the highest possible degree of individual satisfaction.

The techniques contained in this code have been evolving for the past forty years. In practical scope and content it is further advanced in the United States than any other large country on earth. It is being used with amazingly satisfactory results by many progressive and genuinely successful companies. Among the companies in the United States which are the best financial risks, have unbroken records of dividend payments, have the minimum of difficulty in recruiting and retaining high quality personnel at all levels, have the best reputations in the field of human relations and have the longest and best records of industrial peace, are those who have put this code to use.

Make no mistake about it—if we are to come through the totalitarian threat to our national life with the flag of freedom still flying . . . if we are to win this greatest contest in modern history between individual liberty and slavery . . . it is not going to be enough just to *broadcast* the virtues of the American way of life through loud speakers and posters. The virtues of the American way of life must be unmistakably *demonstrated* at the places where people work, and be made a part of their daily work experience.

It is not enough for government officials, either civil or military, to handle the taxpayer's money conscientiously. In their contacts with those whose work they direct, they should see to it that work experiences are a *confirmation* rather than a *contradiction* of the Declaration of Independence and the Bill of Rights. . . .

It is not enough for the directors and officers of our industrial and commercial enterprises to make a financial success of their businesses. They should be not only willing, but determined, to eliminate from the work environment the disillusionments and frustrations, the emotional and mental illnesses from which are formed the subversive attitudes that influence the destinies of nations.

For the attainment of those goals for which people everywhere have been striving since the early dawn, there is no substitute for sound personnel administration. The stand it takes is a powerful one, for the code it represents is universal and creative and fulfills the needs of human beings. Sound personnel administration stands for *principles* that mankind has evoked out of hope and love for centuries, for the lack of which we might this very day be coolies of a master race, and by the *neglect* of which we may yet be servants of a totalitarian state.

ITS YOUR FEDERAL GOVERNMENT

By ROBERT L. JOHNSON, *President*, Temple University and
Chairman, Citizens Committee for the Hoover Report

THIS IS one of an intermittent series of articles dealing with the need for streamlining our federal government to increase its efficiency and reduce its cost by several billion dollars. In many respects this is the most important article as it deals with Government Costs and Your Tax Bill.

ON MARCH 15 of this year the American taxpayer paid the largest tax bill he has ever been called upon to meet. It amounted to $1,750 for the average American family and it went to make up the Government's current $71.6 billions budget, the largest, except for one of the World War II years, in the nation's history. The tax amounted to 30 percent of the national income.

Even if the 1953 budget goes no higher it will mean $460 for every man, woman and child in the country. But there are some ominous signs that it will not stop there. Some official estimates have placed the probable total of next year's costs of government at from $80 to $83 billions. This would mean expenditures of between $513 and $533 per capita, or $2,011 to $2,085 for the average American family.

Many of us who have to meet the tax bills have much to say on the subject, but, as Mark Twain said about the weather, "nobody does anything about it." However, since we are bound to discuss mounting taxes we might as well do it along constructive lines. There is a way to reduce the waste in government, and I should like to point it out to you.

A substantial part of the costs of government was found due to bad management and excessive losses through overlapping of functions, duplication and waste. These evils account for an annual loss of at least $5 billions, a loss that can be salvaged.

The plan which can trim much of the waste from the Federal structure isn't a "cure-all" that will immediately lower Federal taxes, but it will insure that our tax money is used to the best advantage and will open the door to future tax reductions.

The plan can be accomplished by adopting the 45 percent of the Hoover Commission program that remains unenacted. Before the Congress today are 20 bills which are based on the recommendations of the Commission. In addition, 51 reorganization plans have been submitted to President Truman by the Citizens Committee for the Hoover Report; the plans also are based on Commission recommendations.

Since the Congress and the President received the bills and plans, little has been done about them. But it is obvious that prompt action can save us hundreds of millions of dollars annually. Here are some of the things that would happen if action is taken:

Federal personnel policies would be streamlined. Today the Government system of hiring is not designed for obtaining and holding the best people for the jobs.

The Department of Agriculture would be reorganized. A conglomeration of boards, bureaus, and other agencies, need simplifying.

The Post Office would be taken out of politics. When we head our post offices with political appointees, as is done today, incentive is stifled among the other employees.

Government construction practices would be consolidated. Today agencies within the Federal system are competing with each other—not to see which can spend the least, but in many cases to see which can spend the most.

Federal medical activities would be welded together under a single administration. Over thirty agencies now have their medical activities, and each one knows little of what the others are doing in regard to medicine.

The Veterans Administration would be put on a business-like basis. Because of conflicting lines of authority and responsibility and because of over-grown staffs, the VA is not serving the veteran in the most efficient manner possible.

The Hoover Commission, which was composed of six Democrats and six Republicans, was formed in 1947. It had the help of some 300 experts to make an all-encompassing survey of the Executive Branch of our Government. The result was a great Report, 19 volumes containing nearly 300 recommendations for improving Federal operations.

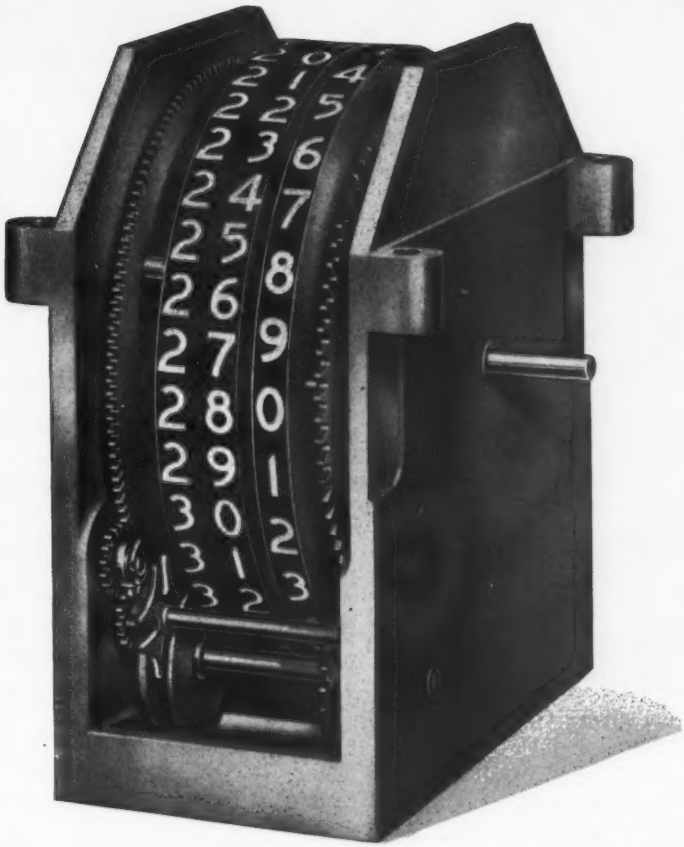
About 55 percent of the recommendations have been put into effect. To date, 27 reorganization plans and 21 laws have been passed as a result of the Commission's plan. They are saving you some $2 billions a year.

On the basis of the Hoover Commission Report, the Armed Services have been unified. The Report produced the General Services Administration which has saved us millions of dollars by consolidating the housekeeping functions of the Government; red tape has been cut in the business of procurement, purchasing, record-keeping, and storage. Accounting methods dating into the last century have been modernized. The President can use his time to better advantage; he is now able to delegate such unimportant duties as signing licenses for whale fishing. Partial reorganization of the postal system has been accomplished, including an increase of certain rates for services which were losing millions each year.

Reorganization to the present has saved us scores of times the money that the Hoover Commission cost us. For instance, savings in the Post Office alone —some $76 millions—amount to 41 times the cost of the Commission.

One of the most heartening factors of this work has been the way in which both political parties have joined to support reorganization. This bipartisan attitude has kept the program from being dragged down by bitter political fights. We propose to maintain the bipartisan nature of the Hoover Commission program by trying to avoid political involvement in the election campaigns. To do this, the Citizens Committee for the Hoover Report plans to stage one hard, final drive and then close its doors June first.

(Continued on page 31)



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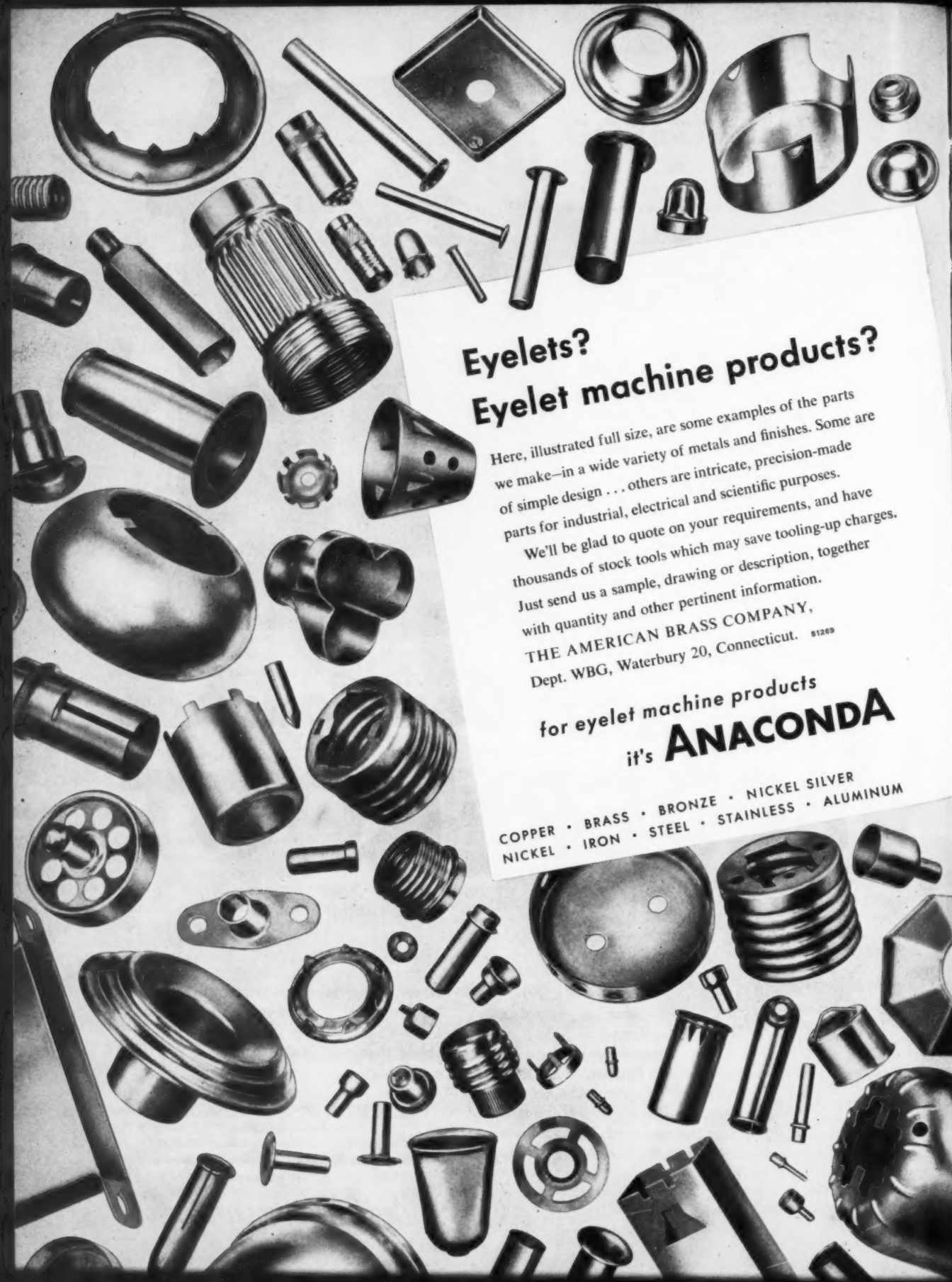

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NEWS FORUM

This department includes a digest of news and comment about Connecticut Industry of interest to management and others desiring to follow industrial news and trends.

ROGER E. GAY, president of the Bristol Brass Corporation, and president of the American Standards Association, spoke recently in Chicago before an international conference of production engineers and executives sponsored by the American Society of Tool Engineers. Mr. Gay's subject, "The Part of Standards in Better Consumer Relations," is regarded as a vital one in the "Tooling for Security" program now under way among the western nations.

The five-day meeting, which was attended by some 25,000 production experts from the United States, Canada, and foreign countries, featured a giant industrial exposition occupying five halls at the International Amphitheatre, extensive technical sessions, conferences and visits to important plants in the Chicago area.

★ ★ ★

A NEW LINE of bearing balls identified as Se-Jector Gauged is now being offered by Pioneer Steel Ball Incorporated, Unionville. Developed to meet the demand for more closely matched tolerances within established commercial and precision limits, Se-Jector Gauged bearing balls are said to contribute to improved bearing performance by equalizing load distribution.

In conventional gauging methods an occasional out-of-round ball can pass without detection whenever the short axis of the ball offers the gauging surfaces which will effect size separation. The new item applies principles of selective accuracy never before utilized in the steel ball industry. Each individual ball is subjected to a sequence of multiple gauging which not only selects balls in closely matched tolerances, but rejects any ball lacking the required sphericity as well as any with flats so tiny as can not be detected with less sensitive devices.

★ ★ ★

PROPERTY OCCUPIED by the Republic Steel Corporation in East Hartford has been purchased by that firm from the Reconstruction Finance Corporation. Part of the plant was erected by the Defense Plant Corporation prior to its transfer to RFC. Republic Steel has occupied it under lease since October 1943, and last year, with its own funds, completed a large addition.

★ ★ ★

THE HIGH STANDARD MANUFACTURING CORPORATION, New Haven, has announced that Kenneth MacGrath, an executive with several nationally-known industries, has been elected chairman of the board of directors. Arthur H. Murtha has been promoted from vice president to president. Mr. MacGrath succeeds F. E. Bradley as chairman, and Mr. Murtha replaces the late Deane S. Hazen in the presidency.

Under the new arrangement Mr. MacGrath will also be general manager of the company which manufactures guns. He was formerly vice president of the Whirlpool Corporation, of St. Joseph, Michigan. He was president of Air Associates, Inc., of Teterboro, N. J., from 1944 to 1948, and was associated with Eclipse Pioneer, a division of the Bendix Aviation Corporation from 1929 to 1944.

Mr. Murtha is a graduate of Yale University, and prior to joining High Standard had been associated with the British Purchasing Commission and during World War II rose to the rank of Major in the Ordnance Department.

The Cover

THE AGE OF DISCOVERY is the caption of this month's front cover photo taken in Old Lyme by Michael Roth of New Haven.

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C. L. CAMPBELL

R. H. KNOWLTON

THE RESIGNATION of Charles L. Campbell as chairman of the board of directors of the Connecticut Light and Power Company was accepted by the board at a recent meeting. He has been succeeded in the position he has held since 1948 by R. H. Knowlton, president. S. R. Knapp was elected president to succeed Mr. Knowlton.

The utility company's new president joined the firm in 1928 immediately after his graduation from Cornell University with an engineering degree. He served as an engineer in the operating and sales departments in Waterbury and Hartford until 1937, when he was made manager of the New Milford district. In 1941 he was appointed assistant to the sales vice president and was appointed assistant to the president in 1948. A year later Mr. Knapp was elected executive vice president.

Robert H. Knowlton, who succeeds Mr. Campbell, has served the company since 1917. An engineering graduate of Cornell University, he became assistant to the president in 1926 and was elected vice president in 1939 and president in 1948.

C. L. Campbell, the company's retiring board chairman, is a native of Canada who came to Connecticut in 1901. From that time Mr. Campbell has served continuously in the utility industry in Connecticut, except for a short period in 1911. He became secretary and treasurer of the United Electric Light and Water Company in 1912 and when that company was merged with The Connecticut Light and Power Company in 1917, he retained the same position. He was elected vice president and treasurer in 1929 and president in 1937.

S. R. KNAPP

"UNITED ACTION FOR SMALL BUSINESS, INC.," a new national organization launched recently in New York, is designed to "fight for the survival of small business and for its integration into the defense production effort," according to Ishier Jacobson, an executive of the W. B. Connor Engineering Corp. of Danbury, and first vice president of the United Action group.

Mr. Jacobson stated that "the fundamental objective of United Action is for small businessmen to participate on their own behalf in the formation of federal laws and regulations." The group, which will receive the support of a number of Connecticut firms, according to Mr. Jacobson, has set up a seven-point program with these aims:

Legislation guaranteeing a fair share of government defense appropriations to small plants; the fullest extension of the policy of permitting price differentials to small plants; regional pools so

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that "small business" can bid for contracts on an equal basis with "big business."

Other points call for the relaxing of allotments of controlled materials within the framework of defense needs, to preserve the small manufacturer and to reduce unemployment in hard-hit industrial areas; and also a drastic reformation of government procurement procedures to give small business "equal opportunity."

★ ★ ★

THE RESIGNATION of Walton D. Lynch as president of the National Folding Box Company, Inc., New Haven, to become chairman of the board, and the election of Frederick S. Symington, previously executive vice president and general manager, to the presidency, were announced recently by the company.

Additional major changes were the election of Wilfred C. Palmer to the position of executive vice president in charge of sales and director, W. R. Compton as comptroller, F. E. Endriss as treasurer, and James MacIntyre, formerly financial assistant to the president, as assistant treasurer.

★ ★ ★

MARK C. ALLEN, assistant treasurer of the American Hardware Corporation, New Britain, died recently at his home.

A member of the Board of Education for 10 years until 1942, he was also active in many groups and was a former president of the General Electric Accountants Association.

He is survived by his wife, a daughter and a brother and sister.

★ ★ ★

DEVELOPMENT of a process for the nickel coating of aluminum, which may find many applications in industrial manufacturing, was announced jointly by Hamilton Standard Division, United Aircraft Corporation and the Bart Laboratories Company, Inc., of Belleville, New Jersey.

S. G. Bart, president of the Bart Laboratories, said the new process solves a major problem in the coating of aluminum with nickel to give a stress-free hard, yet resilient coating. A synthetic rubber compound developed by Hamilton Standard is used to establish a bond, previously unattainable, between the aluminum and nickel plate.

Erle Martin, general manager of Hamilton Standard, said the plating

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process had taken almost two years to develop for the Air Force and the Navy in cooperation with the Bart organization. It is said to be of major importance to Hamilton Standard in protecting duralumin propeller blades from the pitting and eroding effect of spray thrown up in sea landings and takeoffs.

★ ★ ★

THE APPOINTMENT of Vincent L. Bradford, vice president in charge of sales, to the post of director of advertising has just been announced by James A. Sharkey, executive vice president of the Milford Rivet & Machine Company, Milford, manufacturers of split and tubular rivets, cold-headed specialists and rivet-setting machines.

Mr. Bradford has served in various capacities in the sales department for six years, having been with the company's Penn Division at Hatboro, Pa. before joining the executive staff at the Milford headquarters plant.

★ ★ ★

KAMAN AIRCRAFT production employees voted for no union recently against the UAW-CIO and the IAM-AFL. Culminating 10 months of intensive campaigning, the election was close with the two unions receiving a total of 114 votes and "no union" receiving 121 votes. Twelve votes were challenged by both unions on the grounds that the voters involved should be classed as supervisory employees.

★ ★ ★

TWO REPRESENTATIVES of the Telegraph Construction and Maintenance Company of London, England, were visitors recently at the plant of Rockbestos Products Corporation, New Haven, manufacturers of permanently insulated wires and cables.

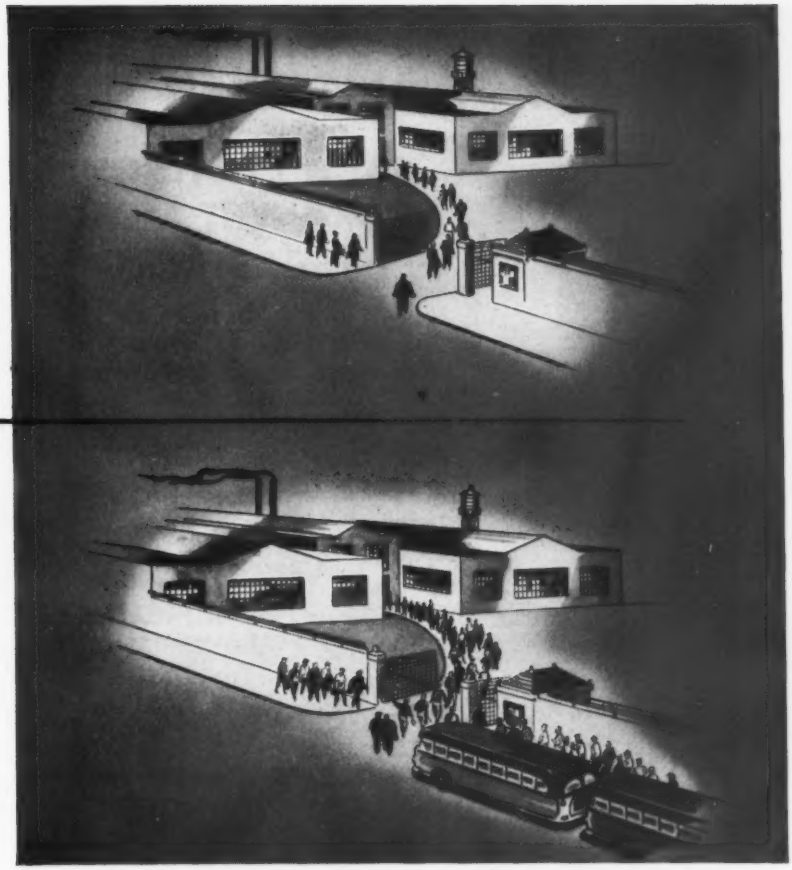
S. W. Trill, manager of the high frequency cable department, and M. K. J. Nemenyi, chief designer, were the members of the British Company who made a tour of the Rockbestos plant with Rockbestos President A. G. Newton, B. H. Reeves, vice president and general manager; and Harold S. Moore, chief engineer.

Rockbestos produces specially-insulated wires and cables for use in aircraft, Navy ships, and radar for defense purposes, and also for use by utilities, steel mills, coal mines, and appliance manufacturers.

Among the products presently manufactured by the British company are communication cables for use under water.

Increased

Employment



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THE APPOINTMENT of Robert P. Lee, Industrial Power Engineer for the Connecticut Light and Power Company's Meriden district, to be industrial development representative for the company was announced recently by Paul V. Hayden, director of public relations.

In his new post Mr. Lee will endeavor to promote the industrial development of the company's service area. He will be available to aid interested communities in the organization and operation of industrial foundations, and to help them obtain industrial prospects. In this activity he will work closely with local Chambers of Commerce, the Connecticut Development Commission, and other organizations concerned with industrial development.

Mr. Lee was born on St. Michael Island, Alaska, and was educated in the public schools of Meriden and at Lehigh University where he was graduated in 1933 with the degree of B.S. in electrical engineering.

★ ★ ★

PAUL M. FLEMING was elected executive vice president of The Bigelow Company, New Haven, at a recent meeting of the company's board of directors. Other officers elected were: Starr H. Barnum, president and treasurer; Gustave Walter, vice president, Starr H. Barnum, III, secretary; and George B. Sherman, assistant treasurer.

★ ★ ★

SPEAKING AT A MEETING of the Hartford Industrial Foreman's Club recently, A. V. Bodine, president of the Bodine Corporation, Bridgeport, and president of the Manufacturers Association of Connecticut, Inc., called for a halt on "creeping socialism from depriving us of the liberties we now have."

Declaring that both federal and state taxation threatened private ownership of property, Mr. Bodine stated that risk capital is becoming scarce and profit margins cut dangerously low by present government tax policies.

He stated that this state has the largest number of machine tools per capita of any area in the world, and advocated continuous modernizing of these tools so that the state would be able to compete successfully. "You cannot meet tomorrow's competition with yesterday's machine tools," he stated.

★ ★ ★

SOLOMON ELSNER, prominent Hartford attorney and civic leader, was

elected president of the Connecticut Blue Cross at the annual meeting of the non-profit hospital plan's board of directors recently.

Mr. Elsner succeeds Harry B. Kennedy, founder of Connecticut Blue Cross, who retires from the presidency after 15 years of service. The board honored Mr. Kennedy with the title of president-emeritus.

Other officers named for the coming year are: Frederick M. Daley, Derby, Wallace E. Campbell, Hartford, and Thomas J. Wall, Norwalk, as vice presidents; Dr. Creighton Barker, New Haven, Secretary; and George R. Willis, New Haven, treasurer.

★ ★ ★

HENRY H. FOWLER, administrator of the National Production Authority, has revealed that sufficient controlled materials will be made available under the Small Business Hardship Account to help all small manufacturers of civilian-type products who face failure or prolonged shutdown because of reduced allotments and inability to obtain defense contracts.

He told the initial organizational meeting of the Small Business Hardship Account Panel, which reviews applications for supplement allotments from this special reserve, that part of the controlled materials turned back recently by military services will be earmarked for the Small Business Hardship Account, supplementing other contributions from NPA industry divisions and general NPA reserve.

★ ★ ★

THE SIXTH INDUSTRY meeting in the Connecticut in Production series, sponsored by the Industry Committee of the Connecticut State Federation of Women's clubs, was held at the Singer Manufacturing Company, Bridgeport, recently.

The all-day meeting started at 10:00 A. M. when the clubwomen assembled in the reception lobby of the plant for a tour of the factory. Luncheon followed at the parish house of the Park Street Congregational church. The afternoon session convened at 1:30 when J. A. Mackey, works manager of Singer Manufacturing Company, introduced Mrs. Francis Hayes, chairman of the Industry Committee, who welcomed the group and showed films depicting the uses of industrial sewing machines in various applications.

Guests attending the meeting included Hugh F. Rehg and Helen L. Livingston of the National Association of Manufacturers and L. M. Bingham, representing the Manufacturers Association of Connecticut. Mrs. C. Whitfield Gowrie of Hamden, chairman of the industry division of the National Federation of Women's Clubs, and the state federation president, Mrs. Douglas A. Johnston of Newington were unable to attend because of illness.

★ ★ ★

SEVEN EMPLOYEES of the Rockbestos Products Corporation, New Haven, were honored for long service at special ceremonies at the plant recently.

Highest awards went to H. O. Anderson, vice president in charge of sales, who received a watch and a 25-year Hourglass Club service pin. The awards were sponsored by the Hourglass Club, employees' social organization.

Others honored for long service with Rockbestos include R. A. Bauersfeld, George A. Aransky, Barclay H. More, Carl R. Trau, Helen E. Schneider and Ralph F. Brannen.

Mr. Anderson joined the company as a salesman and became successively general sales manager and vice president in charge of sales. He holds several patents of products and processes which have contributed substantially to the growth of the New Haven company which is recognized for its pioneering in the development of wire and cable insulation to resist severe operating conditions.

★ ★ ★

WALTER P. JACOB has resigned as executive vice president of Colt's Manufacturing Company, Hartford. Mr. Jacob, who is president of Jacob Industries and the Hartford Electrical Steel Corporation, is former president of General Bronze Corporation.

★ ★ ★

THE FORMATION of a New England Regional Advisory Board for the Small Defense Plants Administration has been announced by Telford Taylor, administrator.

Members of the board include Ralph A. Powers, president, Robertson Paper Box Company, Montville; and Frederick Eaton, director, Research and Design Institute, Inc., New Haven. The board's office will be in Boston.

★ ★ ★

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STANDING BESIDE the passenger door of the aircraft, Deputy Administrator Fred H. Lee of the Civil Aeronautics Administration hands type certificate for 10 place S-55 transport helicopter to Sikorsky Aircraft General Manager B. L. Whelan. C. A. A. First Region's Herbert M. Toomey (left) and Engineering Manager Igor I. Sikorsky (right) are witnesses.

ness certificate for use in scheduled airline passenger service, the multi-place Sikorsky S-55 helicopter, was approved for commercial operation recently by the Civil Aeronautics Administration. This certification makes the aircraft available for immediate commercial service.

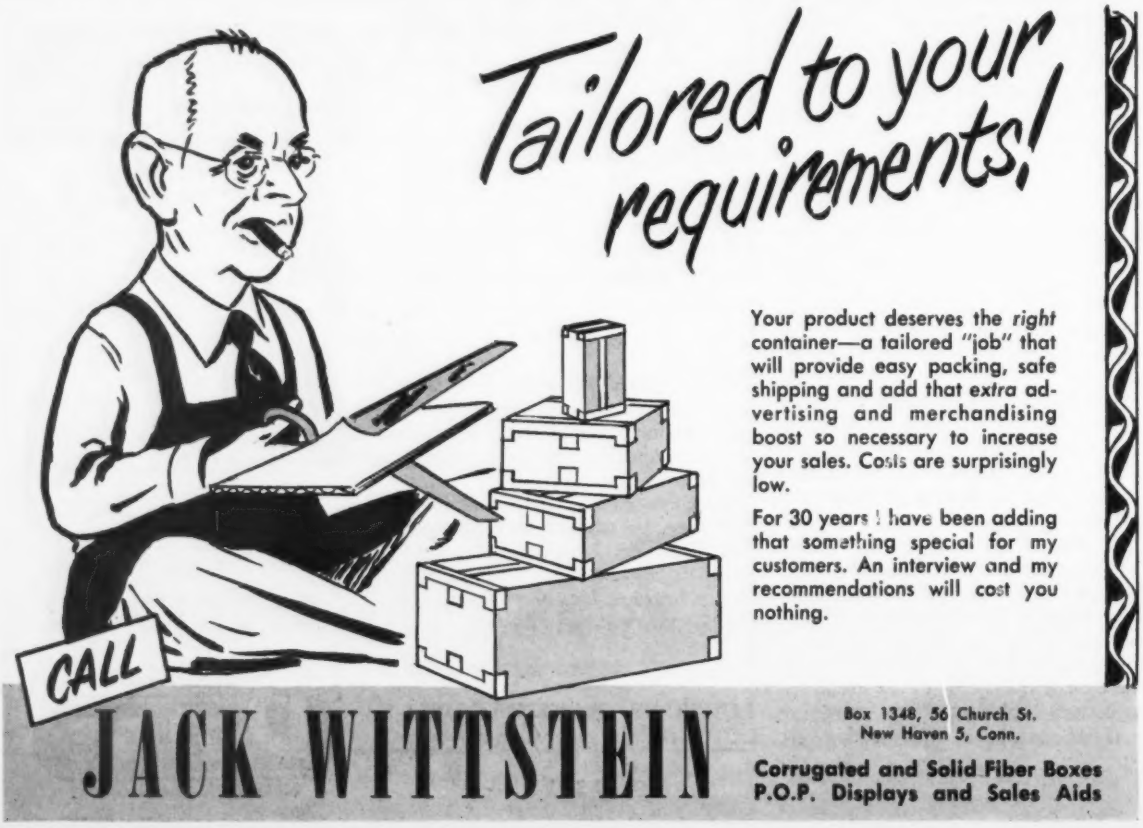
Among the first civilian users of these transport aircraft will be Los Angeles Airways in California, and Okanagan Air Service, Vancouver, British Columbia.

★ ★ ★

THE KALART COMPANY, INC., of Plainville, has announced the appointment of Edward K. Kaprelian to the post of director of research and development. Mr. Kaprelian was formerly with the Signal Corps Engineering Laboratory, Fort Monmouth, N. J., where he was chief of the photographic branch since 1947. He is well known among manufacturers of photographic equipment and brings to Kalart a vast and diversified knowledge of photographic techniques and processes.

★ ★ ★

APPLICATIONS FOR REGISTRATION for a Management Conference to be held at the University of Connecticut, Storrs, from August 17 to August 29 are now being accepted. The conference will be jointly sponsored by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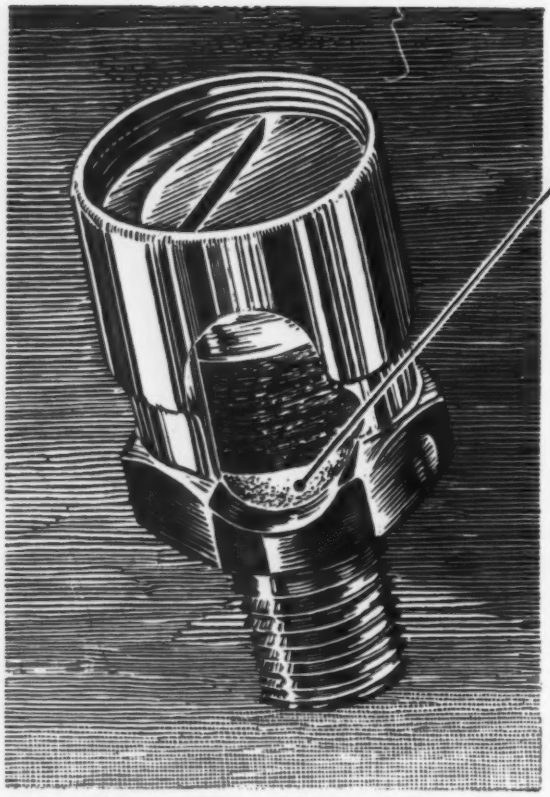

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the School of Business Administration, University of Connecticut, and the New England Chapters, Society for Advancement of Management.

Laurence J. Ackerman, dean of the School of Business Administration has described the purpose of the forthcoming conference this way: "Increasing costs and limited manpower availability have focused more dramatically than ever the need for a high degree of effectiveness in industrial management. To accomplish this goal, full utilization of the most effective and most modern techniques in managerial methods is necessary.

"As a small contribution to this objective, this conference offers as its central theme the development of the art and science of time study, methods, wage administration, cost control, and production management.

"In the scholarly, quiet atmosphere of a campus, under the guidance of practical, experienced group leaders, each participant will be given an opportunity to think through the applications of the principles offered to his particular organizational problems. This opportunity will be bolstered by the exchange of opinions with other participants in the conference."

Full details on the scheduled classes and laboratories, conference fee and other information is available through Prof. Harold E. Smalley, University of Connecticut, Storrs.

★ ★ ★

THE NEW "JIFFY" tool makes concrete floor painting faster, easier, and gives a smoother paint job than either spraying or brushing, according to the Mico Products Co., Hamden, manufacturer of the Mico Paint Tool.

The tool consists of a scientifically designed wedge shaped rubber pad 20 inches long by 4½ inches wide. Operated with a 54 inch handle in push-broom fashion, it is guaranteed to paint concrete floors ten times faster than with a four inch brush, without stooping.

Paint is poured directly on the concrete floor, and is spread in a thin layer, covering a smooth 20″ swath. The double-edged tool is reversed in seconds to double its life, and is easily cleaned with a damp kerosene rag.

★ ★ ★

A NON-CONTRIBUTORY PENSION for Underwood Corporation employees has been approved by stockholders of the company. The plan, as announced by Leon C. Stowell, com-

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pany president, guarantees employees with more than 30 years' service with the firm an income of $125 upon retirement. The plan is retroactive to January 1, 1952.

PERCIVAL C. SMITH

PERCIVAL C. SMITH, vice president of the Arrow-Hart and Hegeman Electric Company, Hartford, has been advanced to executive vice president by the board of directors.

The directors also named five second vice presidents and declared a dividend on the company's capital stock.

Named second vice presidents were John C. Ellis, Charles H. Tuttle, George B. Seawright, Harold J. Fonda and Paul T. Galt.

Mr. Smith joined the firm in 1916. When Hart and Hegeman merged with the Arrow Electric Company he became head of the industrial division in charge of development and sales of industrial apparatus manufactured by the new corporation. In 1937 he also took over the supervision of engineering, testing, tool and drafting departments as director of engineering. He was named vice president in 1943.

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PLANT DESIGNS
FOR
ECONOMICAL
OPERATION

★ ★ ★

A GROUP OF SEVENTEEN law professors and economists from eight universities and colleges have called for repeal of the Miller-Tydings so-called "Fair Trade" Act.

In a letter to Rep. Celler (D-NY), chairman of the House Judiciary Committee, the group expressed opposition to pending legislation designed to offset a Supreme Court decision of a year ago which, in effect, outlawed the act. The group also called for outright repeal of the act, passed in 1937 and authorizing states to enact fair trade laws.

The group expressed the opinion that even after the bulk of the current rearmament program is completed, the nation's economy "will in all probability be kept at high levels of employment and economic activity by the policies of business and government."

The letter stated that at the present time the economy is working under the forced draft of the rearmament program and the price system should operate to extract "every possible ounce of production from industry and agriculture to absorb and offset the volume of purchasing power left in the pockets of consumers after taxes."

★ ★ ★

CLIFFORD H. WELLS, president of the A. H. Wells Company, Waterbury, died recently after a long illness. He was also a director of the Waterbury Rolling Mills, Inc., and the Citizens and Manufacturers National Bank of Waterbury.

He is survived by his wife, two sons and two daughters.

★ ★ ★

FRANK G. AHERN, president and secretary of the Ahern Textile Print Company, Norwich, died recently while vacationing in Palm Beach, Florida.

Mr. Ahern, a native of Rhode Island, established the Ahern Textile Co. in the Occum section of Norwich in 1939. He was a former president of the Eastern Connecticut Business Association, Inc., and served on the staff of the late Governor James L. McConaughy.

C. K. DAVIS, president and general manager, Remington Arms Co., Inc., Bridgeport, has announced the promotion of four supervisory members of the company's production staff.

Charles L. Jones, former superintendent, production section, has been named special assistant to H. K. Faulkner, director of production. Joseph H. Hodgson succeeds Mr. Jones as superintendent of the production section. He was formerly superintendent of the process engineering and control section.

R. Bruce Bowie, who joined Remington in 1940, became the new superintendent, process engineering control section, and C. C. Burns succeeds Mr. Bowie as chief supervisor, process engineering unit.

★ ★ ★

THE TALCO ENGINEERING COMPANY, INC., Hamden, has recently been given a design and development contract for several new restricted items in the Air Corps field. This follows the design work which that company has done for a number of aviation companies in the state.

Talco is a Connecticut firm which has concentrated on specifying Connecticut products in its design of original equipment for manufacturers who are planning to put these items into production.

It's Your Federal Government

(Continued from page 16)

The final weeks of our organized efforts may hold the last opportunity to take effective action for the sorely needed reorganization open to us through adoption of the remaining Hoover Commission recommendations. We are in hopes you will join us in this last push. I can assure you that the final disposition of the reorganization bills and plans can have a meaning vital to each and every one of us. Our nation is in a time of crisis, a time when every source of strength must be utilized. Eliminating waste in Government can be one of our greatest achievements in the long struggle to bring about a peaceful world.

You can join us in getting behind the Hoover Commission program. Write to your Senators, Representatives and the President, and ask them to see that the job is completed in the next few weeks. It may well be your last chance to help build a better Government at a better price.

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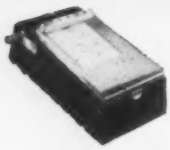
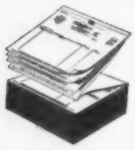


Registers

Register Forms



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INDUSTRIAL Relations — Law

By FREDRICK H. WATERHOUSE
Counsel

A RECENT United States Supreme Court decision and a letter from a marine fighting in Korea show a strange and extreme contrast in philosophy. So that you may judge for yourself which is more truly the philosophy on which our country was founded and flourished, excerpts from the two documents are analyzed and quoted.

The Supreme Court decision arose from a Missouri statute which provided as follows: "Any person entitled to vote at any election in this state shall, on the day of such election, be entitled to absent himself from any services or employment in which he is then engaged or employed, for a period of four hours between the times of opening and closing the polls; and such voter shall not, because of so absenting himself, be liable to any penalty; provided, however, that his employer may specify the hours during which such employee may absent himself as aforesaid." The statute then provides a fine for anyone violating its terms. The test case arose over the following facts. The polls were open from 6 a.m. to 7 p.m. An employee worked on the 8 a.m. to 4:30 p.m. shift. His rate of pay was $1.60 an hour. He requested four hours from the scheduled workday to vote on November 5, 1946. That request was refused, but the employee and all others on his shift were allowed to leave at 3 p.m., which gave them four consecutive hours to vote before the polls closed. The employees left at 3 p.m. and did not return that day, and they were not paid for the hour and a half between 3 p.m. and 4:30 p.m. The employer was prosecuted and found guilty and fined for "penalizing" the employee in violation of the statute.

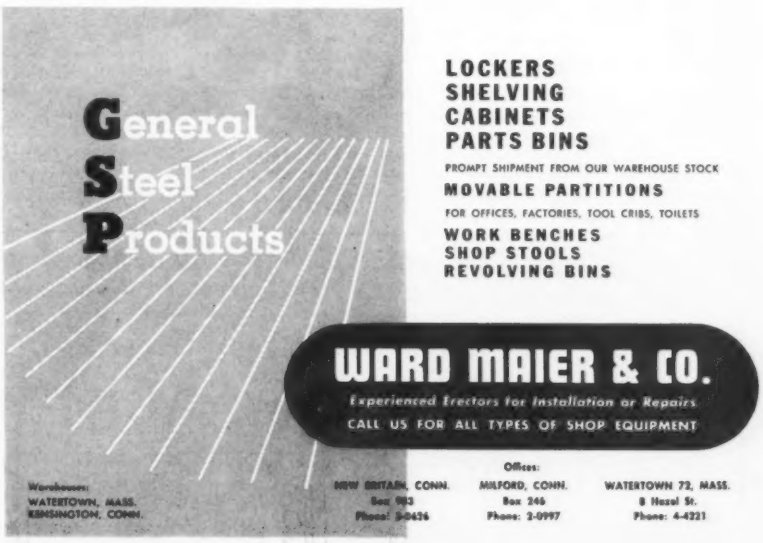
In a rather short opinion for such an important question the Supreme Court adopted the philosophy of ignoring the constitutional requirements under the guise of saying that it was a matter for legislative decision. Specifically the Court said in part of its decision: "The only semblance of substance in the constitutional objection to Missouri's law is that the employer must pay wages for a period in which the employee performs no services. Of course many forms of regulation reduce the net return of the enterprise; yet that gives rise to no constitutional infirmity. Most regulations of business necessarily impose financial burdens on the enterprise for which no compensation is paid. Those are part of the costs of our civilization. Extreme cases are conjured up where an employer is required to pay wages for a period that has no relation to the legitimate end. Those cases can await decision as and when they arise. The present law has no such infirmity. It is designed to eliminate any penalty for exercising the right of suffrage and to remove a practical obstacle to getting out the vote. The public welfare is a broad and inclusive concept. The moral, social, economic, and physical well-being of the community is one part of it; the political well-being, another. The police power which is adequate to fix the financial burden for one is adequate for the other. The judgment of the legislature that time out for voting should cost the employee nothing may be a debatable one. It is indeed conceded by the opposition to be such. But if our recent cases mean anything, they leave debatable issues as respects business, economic, and social affairs to legislative decision."

The Court conveniently ignores the question of how it can be considered that the employer "penalized" the employee. It made no reference to the obvious truth that it is not a penalty to fail to pay a person for time when he is attending to one of his own rights or obligations as a free man. It is a little shocking to some of us when the United States Supreme Court is willing to accept the principle of setting a price on the right to vote. It is also a matter for serious thought when the few remaining free men in the world insist on being paid for voting.

The contrasting philosophy is best expressed by the letter itself from which the following is quoted.

"I have had on my mind for a long time the idea of writing you about George Sulliman, 'K.I.A. First Marines, Korea, recommended for a Navy Cross'.

"He is best remembered by us for his 'being last'. Sullie was always last—no matter what the line was for, he was



last. He used to say, 'Someone has to be last, it might as well be me!' He was never late—just last.

"It looked as though we had stopped those hordes who run around these mountains like jet-propelled ants, but our left flank gave out and we had to protect that flank. We had nothing to throw in so the Marines had to hold and let out the First Cavalry, the British Brigade, our own heavy stuff and then retreat and cross the river. These were really bad days—really bad days because there were no good ones. We fell back playing leap-frog backwards through each other—you can't turn around and run out the way some people seem to think they can here.

"We are back up above the Wonjon reservoir now to the east of where George was killed and many of our class are added to the K.I.A. list getting back up here. Despite the talk of 'cease fire,' men are being killed and wounded, but George was first, maybe he knew that there is no last in the K.I.A. line, there doesn't seem to be.

"He, who had been known among his class for being last, will long be remembered as being the first. He died as a true Marine, a true American, a hero!

"You wonder why I continue. It is necessary to tell that when a man joins the Marine Corps he knows that it is one of the toughest, most exacting fighting units in the world, as well as one of the most dangerous. Some are stirred by 'The Halls of Montezuma,' some do it 'for God, for Country and for Yale' sort of thing, but I know that Sullie was one of us who believed that the disease of a quick dollar or fast buck which has undermined the moral structure of our people is fast degenerating into the more pernicious cancer of 'let the sucker fight for our country or do this or that job well—Me. I'll take the gravy train anytime, every time, but especially, this time!'

"The will to do a job, do it well for nothing more than the personal satisfaction of a job well done, is disappearing from our land. Pride in achievement seems to brand one with moronic tendencies and still—we became a great nation only through this willingness. During the past 20 years from the fountain head of our nation has dripped a poison which is killing the will to do a job well. We, Sullie and our small band are resisting this plague. We don't know too much about the direction of the play, but are like a good tackle, feeling the pressure of the clock, fighting to upset the play without seeing the legerdemain of the ball-handling. Sullie believed with us and had he been spared would have become a leader for good in his community. This, as much as his willingness to die so that we and his platoon might cross the river, marked him as a great loss to our Nation, which needs, so much, men who place the good of the whole above personal greed. Yes, it is too bad that we lose men like Sullie."

It has been said that the Supreme Court reads the election returns. Possibly it should read a few letters like the one above.

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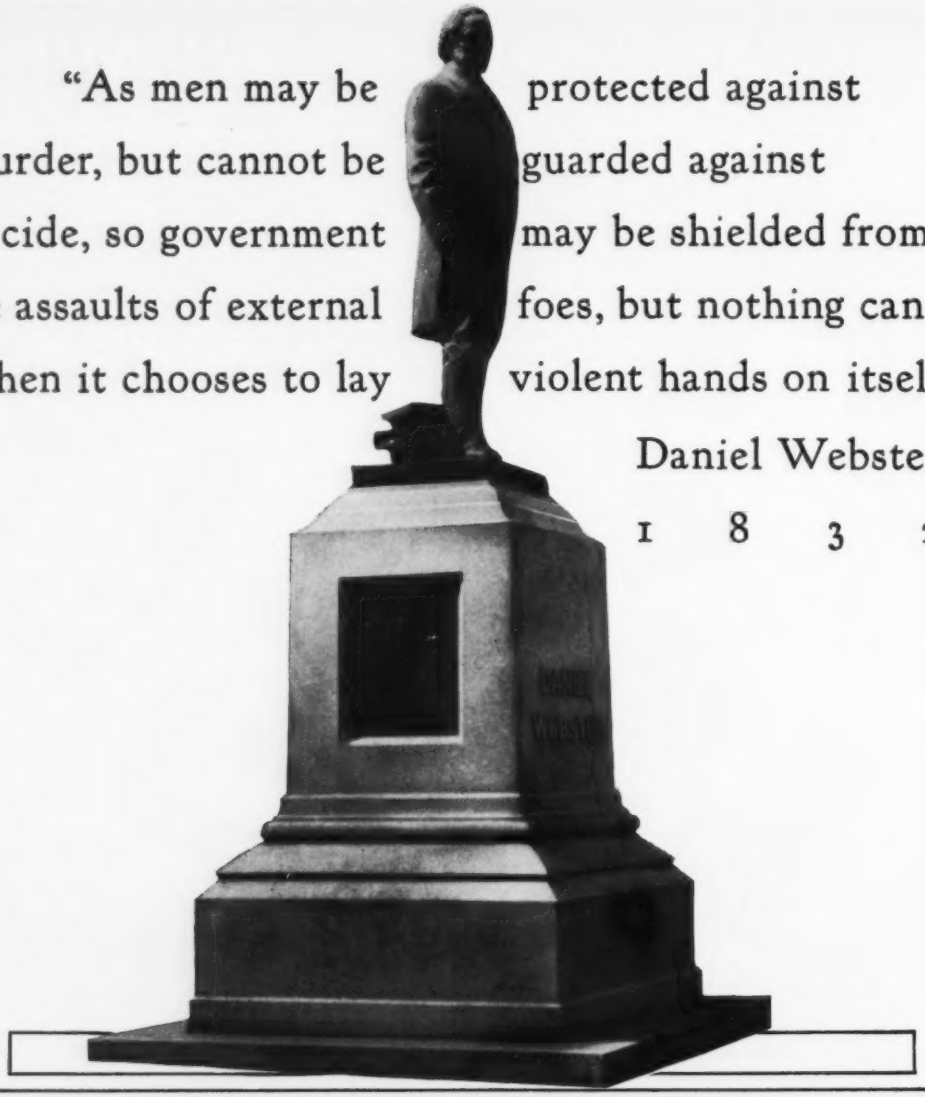
"As men may be protected against
murder, but cannot be guarded against
suicide, so government may be shielded from
the assaults of external foes, but nothing can save
it when it chooses to lay violent hands on itself."

Daniel Webster

1 8 3 2



Like many of the early statesmen who helped make America great, Senator Webster recognized failings that might endanger our country long after his own time.

Today America is strong and getting stronger. We have proved time and again that we can handle "external foes." But corruption in high places, and the resulting scandals, can do more harm than foreign aggression. If we are to remain the greatest of nations we must clean up our own back yard . . . rid ourselves of the parasites and incapable persons who do harm from within. Then and only then will all of us — labor, management and government alike — benefit from living and working in the United States. Then and only then can America work out its destiny.

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ACCOUNTING HINTS

Contributed by the Hartford Chapter National Association of Cost Accountants to stimulate the use of better accounting techniques in industry.

INVENTORY CONTROL

ACCOUNTANTS are prone to use the word "control" to convey a variety of meanings. They speak of budgetary controls, cost controls, ledger controls, etc., without, in many instances, giving adequate consideration to the substance or implication of the term. Webster defines control as the "exercise of a restraining, guiding, governing and regulating influence." More in line with the situation of a business enterprise is the definition written over fifty years ago by Henri Fayal, a Frenchman, who stated in part that "the control of an undertaking consists of seeing that everything is being carried out in accordance with the plan which has been adopted, the orders which have been given and the principles laid down. Its object is to point out mistakes in order that they may be rectified and prevented from occurring again."

These two definitions emphasize one central fact. Control is a dynamic force. It is established and maintained by people. It involves the application of judgment, the ability to make and implement decisions, the compulsion to analyze and evaluate results and to take corrective action. This is the point at which industrial accountants and other members of the management group get off the track. A system of records and reports is set up and called a control system. The fact is overlooked that these are tools which do nothing of themselves. It is only when they are used by people that they become significant. Inanimate objects do not exercise control; an inventory ledger does not exercise control. It is a tool only and is useful only in the care of an inventory clerk. It is necessary to avoid the all too common error of becoming so interested in the mechanics of a system that the prime movers of the system, people, are not considered at all.

The effective management of inventories cannot be achieved without the establishment of definite objectives. These objectives must reflect the operating and financial requirements of the individual enterprise. However, many of the principal ones are common to most companies and may be stated as follows:

1. To maintain the investment in inventories at the lowest point consistent with the operating, sales and financial requirements of the enterprise.
2. To insure an adequate supply of the required kinds of raw materials, parts, supplies, etc., to maintain the most efficient level of operations to meet the demands of customers.
3. To disclose slow-moving, defective or obsolete items.
4. To prevent loss through waste, damage or pilferage.
5. To insure the actual existence of the physical quantities and values shown on the inventory records.
6. To signal over or understocked conditions in relation to current and projected demand.
7. To maintain prices at the most economical level after considering projected requirements, storage facilities and the effect on the selling price of the product.
8. To provide the basis for developing figure facts which will aid in the short and long range planning of inventory requirements, such as content, maximum and minimum quantities, the desired unit price level, etc.

The achievement of these objectives is a major administrative task. It requires the utmost in cooperative effort from all levels of supervisory and line employees. The meaning and objectives of inventory control must be thoroughly understood by each individual concerned. Each of them will be found to relate primarily to people and, like the links in a chain, they are dependent on each other. Unless the purpose, objectives and methods to be employed are disseminated to and understood by each individual responsible for inventory functions, control will not be achieved.

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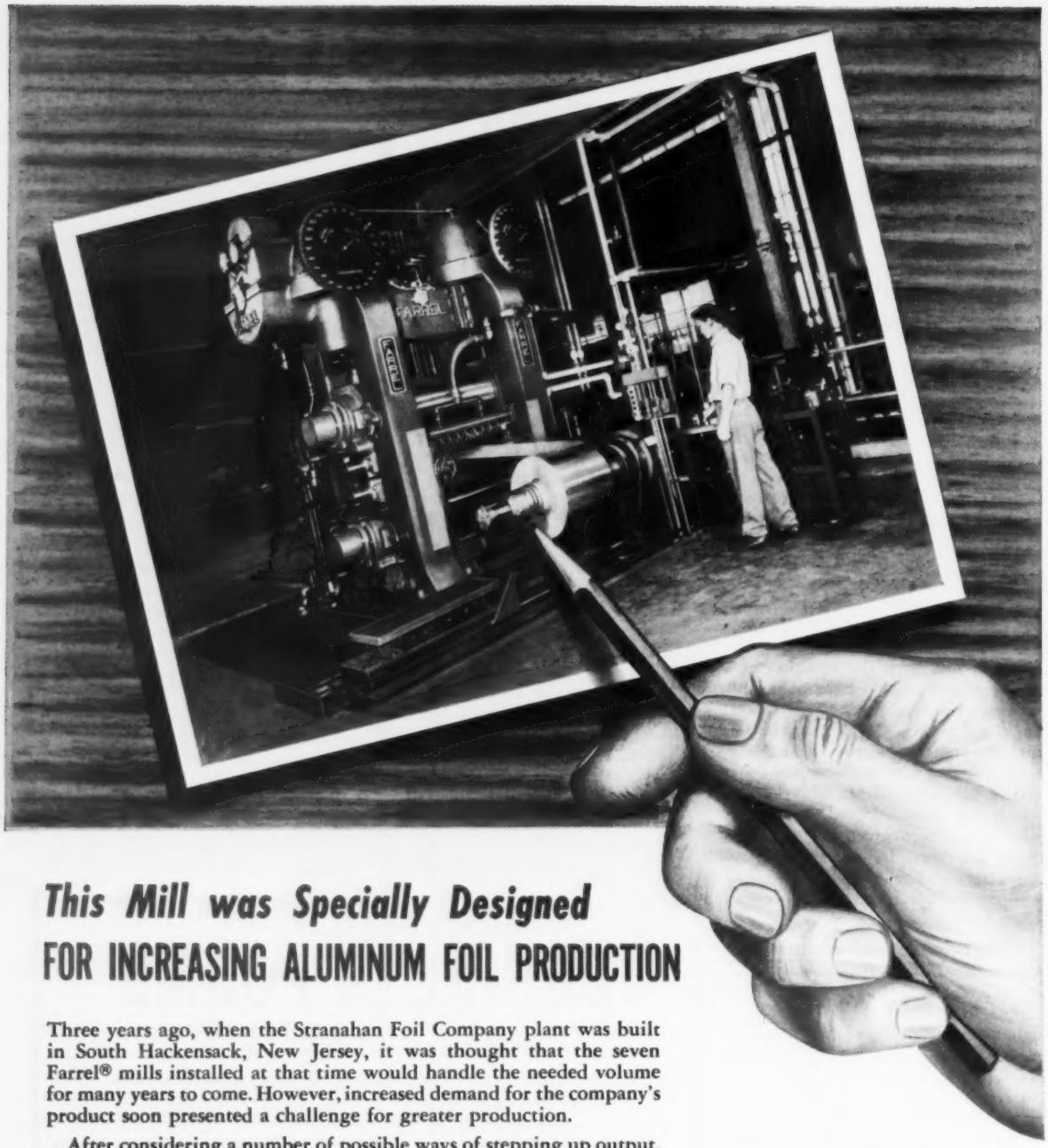

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* **The new mill has 9" x 46" work rolls and 21" diameter backup rolls. All four rolls are forged tool steel, precision ground and crowned to meet requirements. A double motor screwdown provides for precise adjustment of either roll end independently or the simultaneous adjustment of both. The speed of mill operation can be varied to meet a wide range of production requirements by means of an adjustable voltage control system.**

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BUSINESS PATTERN

A comprehensive summary of the ups and downs of industrial activity in Connecticut for the thirty day period ending on the 15th day of the second previous month.

IN FEBRUARY the index of general business activity in Connecticut was estimated at 28% above normal the same as in the preceding month. Throughout the past five months the index has remained within three percentage points of its present standing suggesting a plateau at the current high level. A gradual but steady increase in production for defense has been offset by reduced activity among some concerns producing consumer goods. The tendency to level out during recent months has been particularly noticeable in the employment and manhour components of the general index. Freight shipments, construction and cotton mill activity have fluctuated somewhat more but are now close to their standings of October 1951. The United States index of industrial activity is estimated at 12% above normal for February, an increase of one point over January. The national index has also remained practically unchanged during the last five months varying no more than a point from its current standing.

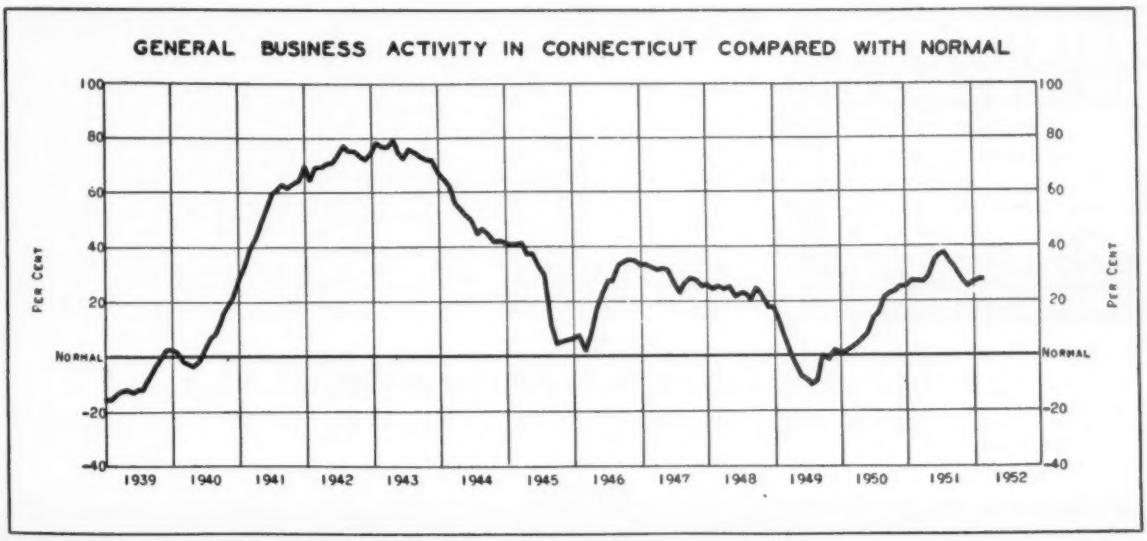
The January index of employment in Connecticut factories is estimated at 19% above normal for the third consecutive month. Although the employment index is slightly below the level reached at the end of last summer it is, however, four percentage points higher than a year ago and twenty points above February 1950. Total non-agricultural employment in Connecticut, unchanged from the previous month, was 828,000 in February, an increase of 19,000 over February of last year. Of the current total, manufacturing employment accounted for 430,000, a gain of 2,000 since January, and 10,000 above the corresponding month of 1951. Non-manufacturing employment at 398,000 last month was 2,000 under the preceding month but 9,000 greater than a year ago.

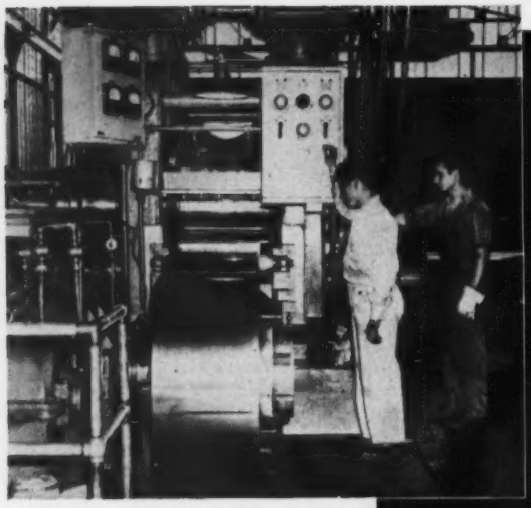
Unemployment in Connecticut has remained at a relatively low level during the past year and a half as indicated by the number of jobless claimants for unemployment insurance benefits filed with the State Department of Labor. The number of claimants rose to over 90,000 during the temporary business recession of 1949. The number dropped off sharply in the latter part of that year and throughout the first three-quarters of 1950. By September 1950, with the Korean war under way, the number of claimants was down to 13,000, a decline of 77,000 in fourteen months. Since then the number has fluctuated between 12,000 and 22,000, depending on the season of the year. At the present time there are about 17,000 on the rolls, a moderate figure in relation to the total labor force of the state.

The index of manhours worked in Connecticut factories declined one point in February to an estimated 39% above normal. The manhour index has moved horizontally within a three point range during the last nine months. Recently there has been a moderate increase in the number of people working but the rise has been no greater than seasonally expected. Average hours worked per employee have remained relatively stable throughout the past year. In February the average work week was 42.3 compared with 42.8 in the corresponding month of last year. Average weekly earnings in Connecticut factories were $69.80 in February against $65.86 a year ago and basic hourly earnings were $1.57 compared with $1.46 in February last year.

The Bureau of Labor Statistics has just completed a revision of the wholesale price index for the period January 1947 to date, with the new index becoming "official" starting with January 1952. Some of the principal differences

(Continued on page 44)





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BUSINESS TIPS

from

School of Business Administration

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The Experimental Method In Marketing Research

By CHARLES G. LEE, *Assistant Professor of Marketing Administration*, University of Connecticut, Incorporated

VARIABILITY AND CONTROL. The experimental method, long a bulwark of scientific progress in the natural sciences, has but recently played an appreciable part in the social sciences. Undoubtedly this belated acceptance may be attributed in large part to the failure of the social scientist to distinguish clearly between the problem of control in the social field and that in the field of the so-called exact sciences. The difference in variability encountered in these fields, while one of degree, requires, nevertheless, two entirely different types of control.

ABSOLUTE CONTROL. The somewhat meagre literature on the use of the experimental method in marketing research is replete with reference to the experimental method as not only costly but extremely difficult or entirely impossible due to the necessity of holding all variables constant except, of course, the one under investigation. Obviously this concept of "absolute control" is a hangover from the experimental idea as conceived in the natural sciences where control is achieved, or variation reduced, by actually holding the variables constant or nearly so by means of technical apparatus.

STATISTICAL CONTROL. It is evident, of course, that consumers, middlemen, competitors, governments, stock and commodity markets, and such variables as the weather, the seasons, cycles and other more or less universal determinants cannot be directly controlled in the interest of any given experiment. It is not as evident, however, that the marketing experiment may be designed to take these variables into account without the necessity of holding them constant and that this exceedingly momentous task may be achieved by the simple expedient of selecting in a statistically random manner the individuals (branch houses, wholesalers, retail stores, persons, sales areas, etc.) to be observed in the experiment.

GROUPS AND MEASUREMENTS. The statistically controlled experiment requires not only that the individuals to be observed be selected in a random manner but that they also be divided randomly into two statistically equal groups—one to be experimented upon by introducing some innovation or change; for example, a new management technique, an advertising campaign or the installation of self-service methods; the other, to be used as a standard against which the change in the first group is to be measured. Because of the selective procedure used (randomization) both groups are assumed to be acted upon equally in the same direction by the uncontrolled forces and it is necessary only to take measurements before and after the experiment to determine the change attributable to the experimental factor. The usual tests of significance are, of course, applied.

REFINEMENTS, RESTRICTIONS, AND CHECKS. Certain refinements and restrictions may be used as in any other sampling procedure; for example, stratification and the multistage sampling techniques. Where doubt arises as to the normal operation of the variables in any given part of the sample, control and experimental groups may be reversed and the experiment repeated as a check. This is merely a precautionary measure, however, and is to be used only where a test of accuracy is desired. Such checks are frequently necessary under any experimental technique.

OTHER FACTORS. In addition to the uncontrolled variables there are certain controllable ones which must be properly handled if good results are to be obtained. Care must be taken to apply the factor or factors being tested in a proper and uniform manner to the

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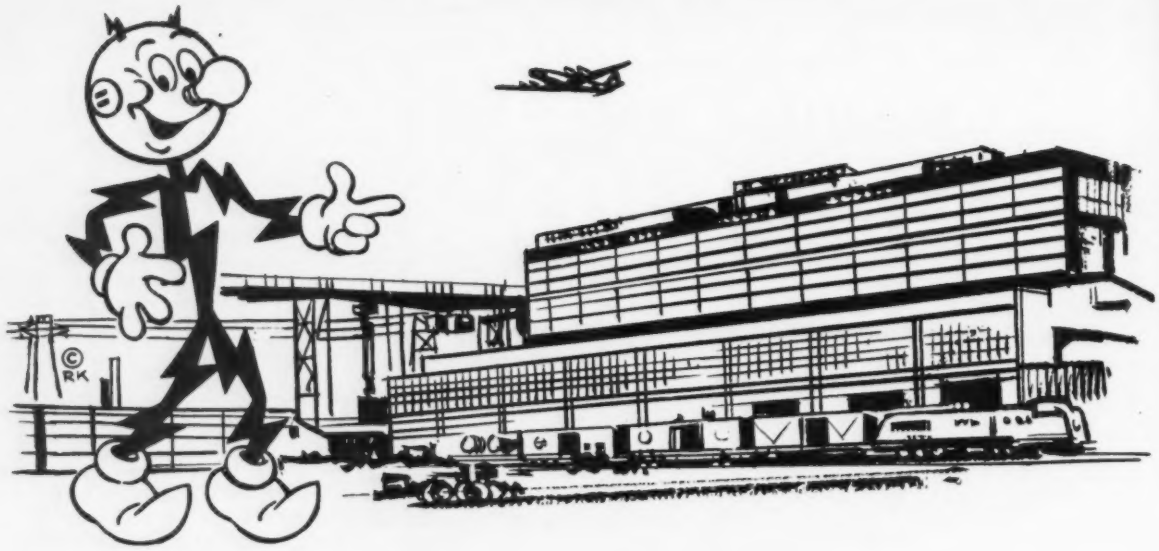

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experimental group. The personnel conducting the experiment must be well trained; branch managers or store operators and clerical staff must be instructed and supervised to make certain that extraneous factors are not introduced while the experiment is in progress. Where advertising is the experimental factor the points of contact must be selected and handled so that no overlapping with previous advertising occurs and so that only the experimental group is involved.

APPLICATION. In general, the method may be adapted to many kinds of marketing problems, in both consumer and industrial fields, such as sales area tests, the testing of advertising media and campaigns, price policy problems, the appeal of products and packages, and the efficiency of merchandising methods. In all cases, the environment in which the experiment is conducted must be essentially that in which the results are to be applied. In other words, the marketing scientist must set up his laboratory at the point of contact under the same operative conditions as exist in the social or business structure. While haphazard or hit-and-miss methods cannot be permitted, where the proper statistical and other controls are carefully planned for and applied, the results are worth the effort, time and money expended.

★ ★ ★

Books & Booklets

BRIEF REVIEWS of books and booklets for the business reader. Contributed by the Business & Technical Branch, Hartford Public Library.

NUCLEAR PHYSICS by Francis Bitter. Addison-Wesley Press, Cambridge, Mass., 1950.

This book is intended for students who have had a course in atomic theory in addition to the usual introductory physics courses. An attempt has been made to write for those intending to continue the study of nuclear science and for others needing a general interest.

BUILDING FOR INVESTMENT by Clinton Cowgill. Reinhold, New York, 1951.

A well-planned book, the author discusses the general aspects affecting a good real estate investment, such as building and site factors as well as the money market. There is some discussion of public building, industrial build-

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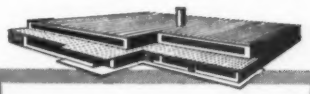

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ing, the work of contractors, appraisal and management. A brief introduction has been written by Roy Wenzlick.

DIE CASTING by H. H. Doehler. McGraw, New York, 1951.

"The purpose of this book is to make individuals—whether they be students, production engineers, or product designers—fully aware of possibilities by discussing, in so far as is practical, the present-day production methods and design techniques and by pointing out probable trends in the near future." Preface.

PURCHASING by Stuart F. Heinritz. Prentice-Hall, New York, 1951.

The author, the editor of *Purchasing Magazine*, has enlarged the 1947 edition. He has included case problems, more on procedure manuals, expediting, quantity buying, and value analysis to effect real proficiency in the purchasing department.

AIR TRANSPORTATION by G. Lloyd Wilson and others. Prentice-Hall, New York, 1949.

The background of aviation and air transportation, the economic study of commercial air transportation, and the regulation of air transportation and aviation are the subjects discussed in this authoritative survey of one phase of transportation.

Business Pattern

(Continued from page 39)

between the former and revised indexes are as follows: (1) The base period (100 per cent) was changed from the year 1926 to an average of the three years 1947, 1948 and 1949, thereby relating the index to a postwar base. (2) Another important change is in the "coverage" of commodities. The former index included about 900 items whereas in the revised index the coverage has been increased to approximately 2,000 commodities. (3) The weights in the old index were based mainly on average sales in the years 1929 and 1931. In the new index the weights are based on transactions in 1947, the latest year for which a complete Census of Manufacturers is available. (4) In classification of items, the chief differences between the revised and former index result from the addition of several new major groups such as machinery, paper and pulp, and the splitting of other groups into component parts. Several new special-purpose indexes were also added, such as for domestic farm products and household equipment and supplies.

The following table shows a comparison of the two indexes during the last six years:

Month and Year	*Former Index (1926=100)*	*Former Index Adjusted to (1947—9=100)*	*Revised Index (1947—9=100)*
Jan. 1947	142.0	90.2	92.3
Jan. 1948	165.9	105.4	104.5
Jan. 1949	160.7	102.1	102.8
Jan. 1950	151.4	96.2	97.7
Jan. 1951	180.1	114.4	115.0
Oct. 1951	178.1	113.2	113.7
Nov. 1951	178.3	113.3	113.6
Dec. 1951	177.8	113.0	113.5
Jan. 1952	(Discontinued)		113.2

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EDITOR'S NOTE: This department, giving a partial list of peace-time products manufactured in Connecticut by company, seeks to facilitate contacts between prospective purchasers in domestic or foreign markets and producers. It includes only those listings ordered by Connecticut producers. Interested buyers may secure further information by writing this department.

(Advertisement)

Accounting Forms
Baker-Goodyear Co The — New Haven

Accounting Machines
Underwood Corporation — Bridgeport

Adding Machines
Underwood Corporation — Bridgeport

Advertising Specialties
H C Cook Co The 32 Beaver St — Ansonia
Halco Co — New Haven
Waterbury Companies Inc — Waterbury

Aero Webbing Products
Russell Mfg Co — Middletown

Air Compressors
Airline Manufacturing Company The — Warehouse Point
Spencer Turbine Co The — Hartford

Air Conditioning
Norwalk Airconditioning Corp The (forced air heating units oil fired) — South Norwalk

Air Impellers
The Torrington Manufacturing Co — Torrington

Aircraft
Sikorsky Aircraft Division United Aircraft Corporation (helicopters) — Bridgeport

Aircraft Accessories
Chandler Evans Division — Niles-Bement-Pond Co (jet engine accessories, aircraft carburetors, fuel pumps, water pumps and Protek plugs) — West Hartford
Warren McArthur Corp (Airplane Seatings) — Bantam

Aircraft Instruments
Gorn Electric Company Inc — Stamford

Aircraft—Repair & Overhaul
Airport Department Pratt & Whitney Aircraft Division — Rentschler Field East Hartford
United Airports Div United Aircraft Corp — Rentschler Field East Hartford

Air Ducts
Wiremold Co The (Retractable) — Hartford

Air Heaters—Direct Fired
Peabody Engineering Corporation — Stamford

Aluminum Castings
Consolidated Industries Inc — West Cheshire
Eastern Malleable Iron Company The — Naugatuck
Newton-New Haven Co 688 Third Avenue — West Haven
Charles Parker Company The — Meriden

Aluminum Forgings
Consolidated Industries Inc — West Cheshire
Scovill Manufacturing Company — Waterbury 91

Aluminum Ingots
Lapides Metals Corp — New Haven

Aluminum Paint
Baer Brothers — Stamford

Aluminum Paste
Baer Brothers — Stamford

Aluminum—Sheets & Coils
United Smelting & Aluminum Co Inc — New Haven

Ammunition
Remington Arms Co Inc and Peters Cartridge Div — Bridgeport
Winchester Repeating Arms Company Division Olin Industries Inc — New Haven

Anodizing
Conn Metal Finishing Co — Hamden

Anodizing—Aluminum
All Brite Chemical Co (also coloring) — Oakville

Anodizing Equipment
Conn Metalcraft Inc — New Haven

Apparel Fabrics—Woolen & Worsted
Broad Brook Company — Broad Brook

Artificial Leather
Permatex Fabrics Corp The — Jewett City

Asbestos
Auburn Manufacturing Company The (gaskets, packings, wicks) — Middletown
Raybestos Div of Raybestos-Manhattan Inc The (brake linings, clutch facings, sheet packing and wick) — Bridgeport

Asbestos & Rubber Packing
Colt's Manufacturing Company — Hartford

Assemblies—Small
Greist Manufacturing Co The — New Haven
Han-Dee Spring and Manufacturing Co The (Small) — Hartford
I H Sessions & Son — Bristol
Wallace Barnes Co The Div Associated Spring Corp — Bristol

Auto Cable Housing
Wiremold Company The — Hartford

Automatic Control Instruments
Bristol Co The (temperature, pressure, flow, humidity, time) — Waterbury

Automobile Accessories
Kilborn-Sauer Company (lights and other accessories) — Fairfield
Raybestos Div of Raybestos-Manhattan Inc The (brake lining, rivet brass, clutch facings, packing) — Bridgeport

Automotive Bodies
Metropolitan Body Company — Bridgeport

Automotive Friction Fabrics
Russell Mfg Co The — Middletown

Automotive Parts
Eis Manufacturing Co (Hydraulic and Mechanical) — Middletown

Automotive & Service Station Equipment
Raybestos Div of Raybestos-Manhattan Inc The (brake service machinery) — Bridgeport
Scovill Manufacturing Company (Canned Oil Dispensers) — Waterbury 91

Automotive Tools
Eis Manufacturing Company — Middletown

Badges and Metals
Waterbury Companies Inc — Waterbury

Bags—Paper
American Paper Goods Company The — Kensington

Bakelite Moldings
Watertown Mfg Co The — Watertown

Balls
Abbott Ball Co The (steel bearing and burnishing) — Hartford
Hartford Steel Ball Co The (steel bearing and burnishing, brass, bronze, monel, stainless aluminum) — Hartford
Kilian Steel Ball Corp The — Hartford

Banbury Mixers
Farrel-Birmingham Company Inc — Ansonia

Barrels
Abbott Ball Co The (burnishing and tumbling) — Hartford
Hartford Steel Ball Co The (tumbling) — Hartford

Barrels—Tumbling
Conn Metalcraft Inc — New Haven

Bathroom Accessories
Autoyre Company The — Oakville
Charles Parker Co The — Meriden

Bath Tubs
Dextone Company — New Haven

Batteries
Bond Electric Corporation Division of Olin Industries Inc (flashlight, radio, hearing aid and others) — New Haven
Winchester Repeating Arms Co Division of Olin Industries Inc (flashlight, radio, hearing aid and others) — New Haven

Beads and Buttons
Waterbury Companies Inc (metal) — Waterbury

Bearings
Fafnir Bearing Co. (ball) — New Britain
New Departure Div of General Motors (ball) — Bristol
Norma-Hoffmann Bearings Corp (ball and roller) — Stamford

Bellows
Bridgeport Thermostat Company Inc (metallic) — Bridgeport

Bellows Assemblies
Bridgeport Thermostat Company Inc — Bridgeport

Bellows Shaft Seal Assemblies
Bridgeport Thermostat Company Inc — Bridgeport

Bells
Bevin Brothers Mfg Co — East Hampton
Gong Bell Co The — East Hampton
N N Hill Brass Co The — East Hampton

Belt Fasteners
Bristol Company The — Waterbury
Saling Manufacturing Company (patented self-aligning) — Unionville

Belting
Hartford Belting Co — Hartford
Russell Mfg Co The — Middletown
Thames Belting Co The — Norwich

Bends—Pipe or Tube
National Pipe Bending Co The — 160 River St New Haven

Bent Wood Products
Sorensen & Peters Inc — Pawcatuck

Bicycle Coaster Brakes
New Departure Div General Motors Corp — Bristol

Bicycle Sundries
New Departure Div General Motors Corp — Bristol

Binders Board
Colonial Board Company — Manchester

Biological Products
Ernst Bischoff Company Inc — Ivoryton

Blacking Salts for Metals
Enthone Inc — New Haven
Mitchell-Bradford Chemical Co — Bridgeport

Blades
Capewell Manufacturing Company Metal Saw Division (hack saw and band saw) — Hartford

Blankets—Automatic
General Electric Company — Bridgeport

Bleaching, Dyeing, Printing & Finishing
Glasgo Finishing Co The — Glasgo
United States Finishing Company The (textile fabrics) — Norwich

Blocks
Howard Company (cupola fire clay) — New Haven

Blower Fans
Colonial Blower Company — Plainville
Spencer Turbine Co The — Hartford

Blower Systems
Colonial Blower Company — Plainville
Ripley Co — Middletown

Blueprints and Photostats
Joseph Merritt & Co — Hartford

Boilers
Bigelow Co The — New Haven
Petroleum Heat & Power Co (domestic only) — Stamford

Bolts and Nuts
Blake & Johnson Co The (nuts machine screw-bolts, stove) — Waterville
Clark Brothers Bolt Co — Milldale
O K Tool Co Inc The (T-Slot) — 33 Hull St Shelton

Bonderizing
Clairglow Mfg Company — Portland

Bottle Openers
Scovill Mfg Co (steel, anodized aluminum) — Waterbury

Box Board
Lydall & Foulds Paper Co The — Manchester
National Folding Box Co Inc — New Haven
Robertson Paper Box Co — Montville
Gair Company Inc Robert — Montville

Boxes
Airline Manufacturing Company (steel cash, bond, security and small boxes) — Warehouse Point
Clairglow Mfg Company (metal) — Portland
Connecticut Container Corporation — New Haven
Merriam Mfg Co (steel cash, bond, security, fitted tool and tackle boxes) — Durham
Gair Company Inc Robert (corrugated and solid fibre shipping containers) — Montville

Boxes and Crates
City Lumber Co of Bridgeport Inc The — Bridgeport

Boxes—Metal
Merriam Mfg Co (Bond and Security, Cash and Utility, Personal Files and Drawer Safes) — Durham

Boxes—Paper—Folding
Atlantic Carton Corp — Norwich
Bridgeport Paper Box Co — Bridgeport
Carpenter-Hayes Paper Box Co Inc The — East Hampton
Folding Cartons Incorporated (paper, folding) — Versailles
M S Dowd Carton Co — Groton
National Folding Box Co Inc (paper folding) — New Haven
Robertson Paper Box Co — Montville
Gair Company Inc Robert — Montville
S Curtis & Sons Inc — Sandy Hook

Boxes—Paper—Setup
Box Shop Inc The — New Haven
Bridgeport Paper Box Co — Bridgeport
Heminway Corporation The — Waterbury
Strouse Adler Company The — New Haven

(Advt.)

Brake Cables
Eis Manufacturing Co Middletown
Brake Linings
Raybestos Div of Raybestos-Manhattan Inc The (automotive and industrial) Bridgeport
Russell Mfg Co The Middletown
Brake Service Parts
Eis Manufacturing Co Middletown
Brass & Bronze
American Brass Co The (sheet, wire, rods, tubes) Waterbury
Bridgeport Brass Company (sheet, rod, wire and tubing) Bridgeport
Bristol Brass Corp The (sheet, wire, rods) Bristol
Chase Brass & Copper Co Waterbury
Miller Company The (phosphor bronze and brass in sheets, strips, rolls) Meriden
Plume & Atwood Mfg Co The (sheet, wire, rod) Thomaston
Scovill Manufacturing Company Waterbury 91
Tinsheet Metals Co The (sheets and rolls) Waterbury
Western Brass Mills Division of Olin Industries Inc (sheet, strip) New Haven
Brass & Bronze Ingot Metal
Plume & Atwood Mfg Co The Thomaston
Whipple and Choate Company The Bridgeport
Brass, Bronze, Aluminum Castings
Charles Parker Company The Meriden
Victors Brass Foundry Inc Guilford
Brass Goods
American Brass Company The Waterbury
Plume & Atwood Mfg Co The (to order) Waterbury
Rostand Mfg Co The (Ecclesiastical Brass Wares) Milford
Scovill Manufacturing Company (to order) Waterbury 91
Western Brass Mills Division of Olin Industries Inc (to order) New Haven
Brass Mill Products
American Brass Company The Waterbury
Bridgeport Brass Co Bridgeport
Chase Brass & Copper Co Waterbury
Plume & Atwood Mfg Co The Thomaston
Scovill Manufacturing Company Waterbury 91
Western Brass Mills Division of Olin Industries Inc New Haven
Brass Scrap
Whipple & Choate Company The Bridgeport
Brick-Building
Donnelly Brick Co The New Britain
Bricks—Fire
Howard Company New Haven
Mullite Refractories Co The Shelton
Bright Wire Goods
Sargent & Company (Screw Eyes, Screw Hooks, Cup Hooks, Hooks and Eyes, C H Hooks) New Haven
Broaching
Hartford Special Machinery Co The Hartford
Bronze Scrap
Whipple & Choate Company The Bridgeport
Bronze Powders
Baer Brothers Stamford
Brooms—Brushes
Fuller Brush Co The Hartford
Buckles
B Schwanda & Sons Staffordville
G E Prentice Mfg Co The Kensington
Hatheway Mfg Co The (Dee Rings) Bridgeport
Hawie Mfg Co The Bridgeport
John M Russell Mfg Co Inc Naugatuck
North & Judd Manufacturing Co New Britain
Patent Button Co The Waterbury
Buffing Compounds
Roberts Rouge Co The Stratford
Buffing & Polishing Compositions
Apothecaries Hall Co Waterbury
Lea Mfg Co Waterbury
Buffing Wheels
Williamsville Buff Div The Bullard Clark Company Danielson
Burners
Plume & Atwood Mfg Co The (kerosene oil lighting) Waterbury
Burners—Automatic
Peabody Engineering Corporation Stamford
Burners—Coal and Oil
Peabody Engineering Corporation (Combined) Stamford
Burners—Gas
Peabody Engineering Corporation (Blast Furnace) Stamford
Burners—Gas and Oil
Peabody Engineering Corporation (Combined) Stamford
Burners—Refinery
Peabody Engineering Corporation (For Gas and Oil) Stamford
Burnishing
Abbott Ball Co The (Burnishing Barrels and Burnishing Media) Hartford
Burs
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford
Buttons
B Schwanda & Sons Staffordville
Frank Parizek Manufacturing Co The West Willington
Patent Button Co The Waterbury
Scovill Manufacturing Company (Uniform and Tack Fasteners) Waterbury 91
Waterbury Companies Inc (Uniform and Fancy Dress) Waterbury
Cabinets
Charles Parker Co The (medicine) Meriden
Cabinet Work
Hartford Builders Finish Co Hartford
Cable—Asbestos Insulated
Rockbestos Products Corp New Haven
Cable—BX Armored
General Electric Company Bridgeport
Cable—Nonmetallic Sheather
General Electric Company Bridgeport
Cable—Service Entrance
General Electric Company Bridgeport
Cages
Andrew B Hendryx Co The (bird and animal) New Haven
Cams
American Cam Company Inc Hartford
Hartford Special Machinery Co The Hartford
Rowbottom Machine Company Inc Waterbury
Canvas Products
F B Skiff Inc Hartford
Capacitors
Electro Motive Mfg Co Inc The (mica & trimmer) Willimantic
Card Clothing
Standard Card Clothing Co The (for textile mills) Stafford Springs
Carpenter's Tools
Sargent & Company (Planes, Squares, Plumb Bobs, Bench Screws, Clamps and Saw Vises) New Haven
Carpet Cushion
Sponge Rubber Products Co Inc Shelton
Carpets and Rugs
Bigelow-Sanford Carpet Co Thompsonville
Casters
Bassick Company The (Industrial and General) Bridgeport
Casters—Industrial
George P Clark Co Windsor Locks
Castings
Bradley & Hubbard Mfg Co The (grey iron, brass, bronze, aluminum) Meriden
Connecticut Foundry Co (grey iron) Rocky Hill
Connecticut Malleable Castings Co (malleable iron castings) New Haven
Consolidated Industries Inc West Cheshire
Charles Parker Company The (grey iron, brass, bronze, aluminum) Meriden
Eastern Malleable Iron Company The (malleable iron, metal and alloy) Naugatuck
Farrel-Birmingham Company Inc (Meehanite, Nodular Iron, Steel) Ansonia
Gillette-Vibber The (grey iron, brass, bronze, aluminum, also Bronze Bushing Stock) New London
Plainville Casting Company (gray, alloy and high tensile irons) Plainville
Revere Corporation of America (precision investment) Wallingford
John M Russell Mfg Co Inc (brass, bronze and aluminum) Naugatuck
Malleable Iron Fittings Co (malleable iron and steel) Branford
McLagon Foundry Co (grey iron) New Haven
Newton-New Haven Co (zinc and aluminum) 688 Third Ave West Haven
Philbrick-Booth & Spencer Inc (grey iron) Hartford
Producto Machine Company The Bridgeport
Scovill Manufacturing Company (Brass & Bronze) Waterbury 91
Sessions Foundry Co The (grey iron) Bristol
Union Mfg Co (grey iron & semi steel) New Britain
Waterbury Foundry Company The (highway & sash weights) Waterbury
Wilcox Crittenden & Co Inc (gray iron and brass) Middletown
Castings—Investment
Arwood Precision Casting Corp Groton
Castings—Permanent Mould
Bradley & Hubbard Mfg Co The (zinc and aluminum) Meriden
Charles Parker Company The Meriden
Cements—Refractory
Mullite Refractory Co The Shelton
Chain
John M Russell Mfg Co Inc Naugatuck
Chain—Welded and Weldless
Bridgeport Chain & Mfg Co Bridgeport
Chain—Bead
Bead Chain Mfg Co The Bridgeport
H G H Products Co Inc Shelton
Chairs
The Hitchcock Chair Company Riverton
Chemical Manufacturing
Carwin Company The North Haven
Chemicals
American Cyanamid Company Waterbury
Apothecaries Hall Co Waterbury
Carwin Company The North Haven
Edcan Laboratories South Norwalk
Macalaster Bicknell Company New Haven
MacDermid Incorporated Waterbury
Naugatuck Chemical Division United States Rubber Co Naugatuck
New England Lime Company Canaan
Pfizer & Co Inc Chas Groton
Chemicals—Agriculture
Naugatuck Chemical Division United States Rubber Co (insecticides, fungicides, weed killers) Naugatuck
Chemicals—Aromatic
Naugatuck Chemical Division United States Rubber Co Naugatuck
Chemicals—Rubber
Robert J King Company Inc The Norwalk
Christmas Light Clips
Foursome Manufacturing Company (various sizes and styles) Bristol
Chromium Plating
Chromium Corp of America Waterbury
Chromium Process Company The Shelton
City Plating Works Inc Bridgeport
Chucks
Cushman Chuck Co The Hartford
Union Manufacturing Company New Britain
Chucks & Face Plate Jaws
Union Mfg Co New Britain
Chucks—Power Operated
Cushman Chuck Co The Hartford
Union Manufacturing Company New Britain
Clay
Howard Company (Fire Howard "B" and High Temperature Dry) New Haven
Cleaning Compounds
Enthone Inc (Industrial) New Haven
Cleansing Compounds
MacDermid Incorporated Waterbury
Clock Mechanisms
Lux Clock Mfg Co The Waterbury
Clocks
E Ingraham Co The Bristol
Seth Thomas Clocks Thomaston
United States Time Corporation The Waterbury
Clocks—Alarm
Lux Clock Mfg Co The Waterbury
Clocks—Automatic Cooking
Lux Clock Mfg Co The Waterbury
Clutches
Snow-Nabstedt Gear Corp The New Haven
Clutch Facings
Russell Mfg Co The Middletown
Clutch—Friction
Raybestos Div of Raybestos-Manhattan Inc The clutch facings—molded, woven, fabric, metallic) Bridgeport
Coffee Makers
General Electric Company Bridgeport
Coils—Pipe or Tube
National Pipe Bending Co The 160 River St New Haven
Whitlock Manufacturing Co The Hartford
Coin Tokens
Waterbury Companies Inc Waterbury
Commercial Heat Treating
A F Holden Company The 52 Richard St West Haven
Commercial Truck Bodies
Metropolitan Body Company Bridgeport
Comparators
Pratt & Whitney Div Niles-Bement-Pond Co (Electro-limit and Air-O-Limit) West Hartford
Compressors
Norwalk Company Inc (high pressure air and gas) South Norwalk
Concrete Products
Plastricrete Corp Hamden
Cones
Sonoco Products Co (Climax-Lowell Div) (Paper) Mystic
Consulting Engineers
Stanley P Rockwell Co Inc The (Consulting) 296 Homestead Ave Hartford
(Advt.)

Continuous Mill Gages
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Contract Machining
Malleable Iron Fittings Company Branford

Contract Manufacturers
Greist Mfg Co The (metal parts and assemblies) 503 Blake St New Haven
Merriam Mfg Co (production runs—metal boxes and containers to specifications) Durham
Plume & Atwood Mfg Co The (metal parts & assemblies) Waterbury
Scovill Manufacturing Company (metal parts and assemblies) Waterbury 91
J H Sessions & Son Bristol

Controllers
Bristol Company The Waterbury
Manning Maxwell & Moore Inc Bridgeport

Conveyor Systems
Leeds Electric & Mfg Co The East Haven
Production Equipment Co Meriden

Copper
American Brass Corp The (sheet, wire, rods, tubes) Waterbury
Bridgeport Brass Company (sheet, rod, wire and tubing) Bridgeport
Bristol Brass Corp The (sheet) Bristol
Chase Brass & Copper Co (sheet, rod, wire tube) Waterbury
Thinsheet Metals Co The (sheets and rolls) Waterbury
Western Brass Mills Division of Olin Industries Inc (sheet, strip) New Haven

Copper Scrap
Whipple & Choate Company The Bridgeport

Copper Sheets
American Brass Company The Waterbury
New Haven Copper Co The Seymour

Copper Shingles
New Haven Copper Co The Seymour

Copper Water Tube
American Brass Company The Waterbury
Bridgeport Brass Co Bridgeport

Cords—Asbestos
General Electric Company Bridgeport

Cords—Braided
General Electric Company Bridgeport

Cords—Heater
General Electric Company Bridgeport

Cords—Portable
General Electric Company Bridgeport

Cord Sets
General Electric Company Bridgeport

Cork Cots
Sonoco Products Co (Climax-Lowell Div) Mystic

Corrugated Box Manufacturers
Connecticut Container Corporation New Haven

Corrugated Shipping Cases
Connecticut Container Corporation New Haven
Connecticut Corrugated Box Div Robert Gair Co Inc Portland
D L & D Container Corp 87 Shelton Ave New Haven

Cosmetic Containers
Evelet Specialty Co The Waterbury
Plume & Atwood Mfg Co The (metal) Waterbury

Cosmetics
J B Williams Co The Glastonbury
Northam Warren Corporation Stamford

Cotton and Asbestos Wicking
Bland Burner Co The Hartford

Cotton Yarn
Floyd Cranska Co The Moosup

Counting Devices
Veeder-Root Inc Hartford

Couplings—Self-Sealing
Sperry Products Inc Danbury

Cranes and Conveyors
I-B Engineering Sales Co New Haven

Crushers
Farrel-Birmingham Company Inc (Stone and Ore) Ansonia

Cups—Paper
American Paper Goods Company The ("Puritan") Kensington

Cushioning for Packaging
Gilman Brothers Co The Gilman

Cut Stone
Dextone Co The New Haven

Cutters
Barnes Tool Company The (pipe cutters, hand) New Haven
O K Tool Co Inc The (inserted tooth milling) 33 Hull St Shelton
Pratt & Whitney Div Niles-Bement-Pond Co (Milling Cutters all types) West Hartford

Decorative Plating and Polishing
City Plating Works Inc Bridgeport

Delayed Action Mechanism
M H Rhodes Inc Hartford
R W Cramer Company Inc The Centerbrook

Diamonds—Industrial
Diamond Tool and Die Works Hartford

Dictating Machines
Dictaphone Corporation Bridgeport
Gray Manufacturing Company The Hartford
Soundscriber Corporation The New Haven

Die Castings
Newton-New Haven Co Inc New Haven

Die Casting Dies
ABA Tool & Die Co Manchester
Parker Stamp Works Co The Hartford
Weimann Bros Mfg Co The Derby

Die Castings (Aluminum & Zinc)
Corbin Cabinet Lock Div American Hardware Corp New Britain
Stewart Die Casting Div Stewart Warner Corp Bridgeport

Die Castings—Zinc
Charles Parker Company The Meriden

Die-Heads—Self Opening
Eastern Machine Screw Corp The Truman & Barclay Sts New Haven

Die Polishing Machinery
Hartford Special Machinery Co The Hartford

Die Sets
Pratt & Whitney Div Niles-Bement-Pond Co (Precision) West Hartford
Producto Machine Company The Bridgeport
Union Mfg Co (precision, steel and semi-steel) New Britain

Dies
Hoggson & Pettis Mfg Co The 141 Brewery St New Haven
Parker Stamp Works Inc The (plastics and die castings) Hartford
Pratt & Whitney Div Niles-Bement-Pond Co (Monocone and Ducone Dies) West Hartford

Die Sinkers
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Dies and Die Sinking
Consolidated Industries West Cheshire

Dish Drying Machines
Colt's Manufacturing Company Hartford

Dish Washing Machines
Colt's Manufacturing Company Hartford

Disk Harrows
Orkil Inc—Cutaway Harrow Division Higganum

Displays—Metal
Merriam Mfg Co (Contract Work to Individual Specifications) Durham

Door Closers
P & F Corbin Division The American Hardware Corp New Britain
Sargent & Company New Haven
Yale & Towne Manufacturing Company The Stamford

Dowel Pins
Allen Manufacturing Co The Hartford
Holo-Krome Screw Corp The West Hartford

Drafting Accessories
Joseph Merritt & Co Hartford

Drilling Machines
Henry & Wright Division of Hartford-Empire Company Hartford
Pratt & Whitney Div Niles-Bement-Pond Co (Deep Hole) West Hartford

Drilling and Tapping Machinery
Hartford Special Machinery Co The Hartford

Drop Forgings
Atwater Mfg Co Plantsville
Bridgeport Hdwe Mfg Corp The Bridgeport
Capewell Mfg Company Hartford
Consolidated Industries West Cheshire
Wilcox Crittenden & Co Inc Middletown

Druggists' Rubber Sundries
Seamless Rubber Company The New Haven

Duplicating Machines—Automatic
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Elastic Webbing
Russell Mfg Co The Middletown

Electric Appliances
General Electric Company Bridgeport

Electric Cables
Rockbestos Products Corp (asbestos insulated) New Haven

Electric—Commutators & Segments
Cameron Elec Mfg Co The (rewinding motors) Ansonia

Electric Cord Springs
Bristol Spring Manufacturing Co Plainville

Electric Cords
Rockbestos Products Corp (asbestos insulated) New Haven

Electric Eye Control
United Cinephone Corporation Torrington

Electric Fixture Wire
Rockbestos Products Corp (asbestos insulated) New Haven

Electric Hand Irons
Winsted Hardware Mfg Co (trade mark "Durabilt") Winsted

Electric Insulation
Case Brothers Inc Manchester
Rogers Corporation The Manchester

Electric Knife Sharpeners
Gorn Electric Company Inc The Stamford

Electric Lighting Fixtures
Plume & Atwood Mfg Co The Waterbury

Electric Motor Controls
Arrow-Hart & Hegeman Electric Co The Hartford

Electrical Outlet and Switch Boxes, and Covers
General Electric Company Bridgeport

Electric Panel Boards
Federal Electric Products Co Inc Hartford

Electric Safety Switches
Federal Electric Products Co Inc Hartford

Electric Shavers
Schick Incroporated Stamford

Electric Signs
United Advertising Corp New Haven

Electric Switches
Arrow-Hart & Hegeman Electric Co The Hartford

Electric Time Controls
R W Cramer Company Inc The Centerbrook

Electric Wire
Rockbestos Products Corp (asbestos insulated) New Haven

Electric Wiring Devices
Arrow-Hart & Hegeman Electric Co The Hartford

Electrical Circuit Breakers
Federal Electric Products Co Inc Hartford

Electrical Conduit Fittings & Grounding Specialties
Gillette-Vibber Company The New London

Electrical Control Apparatus
Federal Electric Products Co Inc Hartford

Electrical Goods
A C Gilbert Co New Haven

Electrical Insulation
Stevens Paper Mills Inc The Windsor

Electrical Motors
U S Electrical Motors Inc Milford

Electrical Outlet and Switch Boxes, and Covers
General Electric Company Bridgeport

Electrical Recorders
Bristol Co The Waterbury

Electrical Relays and Controls
Allied Control Co Plantsville

Electrical Wiring Systems
Wiremold Co The Hartford

Electronics
Crystal Research Laboratories Inc Hartford
Gray Manufacturing Company The Hartford
Ripley Co Middletown
Sturrup Larrabee & Warmers Inc Middletown

Electroplating
National Sherardizing & Machine Co Hartford
Waterbury Plating Company Waterbury

Electroplating—Equipment & Supplies
Enthone Inc New Haven
Lea Manufacturing Co The Waterbury
MacDermid Incorporated Waterbury

Electroplating Processes & Supplies
Enthone Inc New Haven
United Chromium Incorporated Waterbury

Electrotypes
W T Barnum & Co Inc (all classes) New Haven
New Haven Electrotype Div Electrographic Corp New Haven

Elevators
Eastern Machinery Co The (passenger and freight) New Haven
General Elevator Service Co Hartford

Enameling
Conn Metal Finishing Co Hamden
Waterbury Plating Company Waterbury

(Advt.)

Enameling and Finishing
Clairglow Mfg Co Portland

Enamels
Baer Brothers Stamford

End Milling Cutters
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Engines
Pratt & Whitney Aircraft Div United Aircraft Corp (aircraft) East Hartford
Wolverine Motor Works Inc (diesel stationary marine) Bridgeport

Envelopes
Curtis 1000 Inc Hartford
United States Envelope Company Hartford Division Hartford

Envelopes—Stock and Special
American Paper Goods Company The Kensington

Extractors—Tap
Walton Company The West Hartford

Eyelets
American Brass Company The Waterbury
Platt Bros & Co The P O Box 1030 Waterbury
Plume & Atwood Mfg Co The Waterbury
Scovill Manufacturing Company Waterbury 91

Eyelets, Ferrules and Wiring Terminals
American Brass Company The Waterbury
Waterbury Companies Inc Waterbury

Eyelet Machine Products
Ball & Socket Mfg Co The West Cheshire
American Brass Company The Waterbury
Waterville Mfg Co The (size 15 machines only) Waterville

Fabricated Alloys
Rolock Inc (Heat Treating, Finishing) Southport

Fancy Dress Buttons and Buckles
Waterbury Companies Inc Waterbury

Fans—Electric
General Electric Company Bridgeport

Fasteners—Slide & Snap
G E Prentice Mfg Co The Kensington
Scovill Manufacturing Company (snap and slide fasteners) Waterbury 91

Felt
Auburn Manufacturing Company The (mechanical, cut parts) Middletown
Drycor Felt Company (paper makers and industrial) Staffordville

Felt—All Purpose
American Felt Co (Mill & Cutting Plant) Glenville
Chas W House & Sons Inc (Mills & Cutting Plant) Unionville

Fenders—Boat
Sponge Rubber Products Co Inc Shelton

Fibre Board
Case Brothers Inc Manchester
C H Norton Co The North Westchester
Rogers Corporation (Specialty) Manchester
Stevens Paper Mills Inc The Windsor

Film Spools
Watkins Manufacturing Co Inc Milford

Finger Nail Clippers
H C Cook Co The 32 Beaver St Ansonia

File Cards
Standard Card Clothing Co The Stafford Springs

Firearms
Colt's Manufacturing Company Hartford
Marlin Firearms Co The New Haven
O F Mosberg & Sons Inc New Haven
Remington Arms Company Inc Bridgeport
Winchester Repeating Arms Company Division Olin Industries Inc New Haven

Fire Hose
Fabrics Fire Hose (municipal and industrial) Sandy Hook

Fireplace Goods
American Windshield & Specialty Co The 881 Boston Post Road Milford
John P Smith Co The (screens) 423-33 Chapel St New Haven

Fireproof Floor Joists
Dextone Co The New Haven

Fireworks
M Backes' Sons Inc Wallingford

Fishing Tackle
Bevin-Wilcox Line Co The (lines) East Hampton
H C Cook Co The 32 Beaver St Ansonia
Horton Mfg Co The (reels, rods, lines) Bristol

Flashlights
Bond Electric Corporation Division of Olin Industries Inc New Haven
Bridgeport Metal Goods Mfg Co Bridgeport
Winchester Repeating Arms Company Division Olin Industries Inc New Haven

Flat Springs
Bristol Spring Manufacturing Co Plainville

Flexible Shaft Machines
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Floor & Ceiling Plates
Beaton & Cadwell Mfg Co The New Britain

Fluorescent Lighting Equipment
Vanderman Manufacturing Co The Willimantic
Wiremold Company The Hartford

Food Mixers—Electric
General Electric Company Bridgeport

Food Mixing Machines
Colt's Manufacturing Company Hartford

Forgings
Clark Brothers Bolt Co Milldale
Consolidated Industries Inc West Cheshire
Heppenstall Co (all kinds and shapes) Bridgeport
Scovill Manufacturing Company (Non-ferrous) Waterbury 91

Foundries
Connecticut Malleable Castings Co (malleable iron castings) New Haven
Farrel-Birmingham Company Inc (Iron and Steel) Ansonia
Charles Parker Company The (iron, brass, bronze, aluminum) Meriden
Plainville Casting Company (gray, alloy and high tensile irons) Plainville
Producto Machine Company The Bridgeport
Sessions Foundry Co The (iron) Bristol
Union Mfg Co (gray iron & semi steel) New Britain
Wilcox Crittenden & Co Inc (iron, brass, aluminum and bronze) Middletown

Foundry Riddles
John P Smith Co The 423-33 Chapel St New Haven
Rolock Inc (brass, galvanized steel) Fairfield

Fuel Oil Pump and Heater Sets
Peabody Engineering Corporation Stamford

Furnaces
Norwalk Airconditioning Corp The (warm air oil fired) South Norwalk

Furnace Linings
Mullite Refractories Co The (refractories, super refractories) Shelton

Fuses—Plug and Cartridge
General Electric Company Bridgeport

Gage Blocks
Fonda Gage Company (Fonda lifetime-carbide and steel) Stamford
Pratt & Whitney Div Niles-Bement-Pond Co (Alloy steel and Carbide, Hoke and USA) West Hartford

Galvanizing
Malleable Iron Fittings Co Branford
Wilcox Crittenden & Co Inc Middletown

Galvanizing & Electrical Plating
Gillette-Vibber Co The New London

Gaskets
Auburn Manufacturing Company The (from all materials) Middletown
Raybestos Div of Raybestos-Manhattan Inc The Bridgeport

Gas Range Conversion Burner
Holyoke Heater Corp of Conn., Inc Hartford

Gas Scrubbers, Coolers and Absorbers
Peabody Engineering Corporation Stamford

Gauges
Bristol Co The (pressure and vacuum—recording automatic control) Waterbury
Fonda Gage Company (special) Stamford
Helicoid Gage Division American Chain & Cable Co The (pressure and vacuum) Bridgeport
Manning Maxwell & Moore Inc Stratford
Pratt & Whitney Div Niles-Bement-Pond Co (Precision Measurement, all types) West Hartford

Gears and Gear Cutting
Farrel-Birmingham Company Inc Ansonia
Hartford Special Machinery Co The Hartford

Glass Blowing
Macalaster Bicknell Company New Haven

Glass Cutters
Fletcher-Terry Co The Forestville

Golf Equipment
Horton Mfg Co The (clubs, shafts, balls, bags) Bristol

Greeting Cards
A D Steinbach & Sons Inc New Haven

Grinding
Centerless Grinding Co Inc The (Precision custom grinding; centerless, cylindical, surfaces, internal and special) 19 Staples St Bridgeport
Farrel-Birmingham Company Inc (Roll and Cylindrical) Ansonia
Hartford Special Machinery Co The (gears, threads, cams and splines) Hartford

Grinding Heads — Internal
Pratt & Whitney Div Niles-Bement-Pond Co (Pneumatic, High Speed) West Hartford

Grinding Machines
Farrel-Birmingham Company Inc (Roll) Ansonia
Pratt & Whitney Div Niles-Bement-Pond Co (Surface, Die, Gear and Cutter Grinders) West Hartford
Rowbottom Machine Company Inc (cam) Waterbury

Grommets
American Brass Company The Waterbury
Plume & Atwood Mfg Co The Waterbury

Hack and Band Saw Blades
Capewell Manufacturing Co The Hartford

Hand Tools
Bridgeport Hdwe Mfg Corp The (nail pullers, scout axes, box opening tools, trowels, coping saws, putty knives) Bridgeport
James J Ryan Tool Works The (screwdrivers, machinists' punches, cold chisels, scratch awls and nail sets) Southington

Hard Chrome
City Plating Works Inc Bridgeport

Hardness Testers
Wilson Mechanical Instrument Div American Chain & Cable Company Inc Bridgeport

Hardware
Bassick Company The (Automotive) Bridgeport
Harloc Products Corp New Haven
P & F Corbin Division The American Hardware Corp (builders) New Britain
Sargent & Company New Haven
Wilcox Crittenden & Co Inc (marine heavy and industrial) Middletown
Yale & Towne Manufacturing Company The (builders) Stamford

Hardware—Marine & Bus
Rostand Mfg Co The Milford

Hardware—Trailer Cabinet
Excelsior Hardware Co The Stamford

Hardware, Trunk & Luggage
Corbin Cabinet Lock Div American Hardware Corp New Britain
J H Sessions & Son Bristol
Yale & Towne Manufacturing Company The Stamford

Hat Machinery
Doran Bros Inc Danbury

Health Surgical & Orthopedic Supports
Berger Brothers Company The (custom made for back, breast, and abdomen) New Haven

Heat Exchangers
Whitlock Manufacturing Co The Hartford

Heat Elements
Safeway Heat Elements Inc (woven wire resistance type) Middletown

Heat Treating
A F Holden Co The 52 Richard St West Haven
Bennett Metal Treating Co The 1945 New Britain Ave Elmwood
Driscoll Wire Company The Shelton
New Britain-Gridley Machine Division The New Britain Machine Co New Britain
Stanley P Rockwell Co Inc The 296 Homestead Ave Hartford

Heat-Treating Equipment
Bauer & Company Hartford
A F Holden Company The 52 Richard Street West Haven (Main Plant)
Autoyre Company The Oakville
Rolock Inc (Baskets, Muffles, etc.) Southport
Stanley P Rockwell Co Inc The (commercial) 296 Homestead Ave Hartford
Wallace Barnes Co The Div Associated Spring Corp Bristol

Heat Treating Salts and Compounds
A F Holden Company The 52 Richard Street West Haven
Mitchell-Bradford Chemical Co Bridgeport

Heating Apparatus
Miller Company The (domestic oil burners and heating devices) Meriden

Heating and Cooling Coils
G & O Manufacturing Co New Haven

Heavy Chemicals
Naugatuck Chemical Division United States Rubber Co (sulphuric, nitric and muriatic acids and aniline oil) Naugatuck

Hex-Socket Screws
Bristol Company The Waterbury
Holo-Krome Screw Corp The West Hartford

Highway Guard Rail Hardware
Malleable Iron Fittings Co Branford

(Advt.)

IT'S MADE IN CONNECTICUT

Hinges
Homer D Bronson Company — Beacon Falls

Hobs and Hobbings
ABA Tool & Die Co — Manchester
Pratt & Whitney Div Niles-Bement-Pond Co (Die and Thread Milling) — West Hartford

Hoists
J-B Engineering Sales Co — New Haven

Hoists and Trolleys
Union Mfg Company — New Britain

Home Laundry Equipment
General Electric Company — Bridgeport

Hose—Flexible Metallic
American Brass Co
American Metal Hose Branch — Waterbury

Hose Supporter Trimmings
Hawie Mfg Co The (So-Lo Grip Tabs) — Bridgeport

Hospital Signal Systems
Connecticut Telephone & Electric Division of Great American Industries Inc — Meriden

Hot Water Heaters
Petroleum Heat & Power Co (Instantaneous domestic oil burner) — Stamford

Hydraulic Brake Fluids
Eis Manufacturing Co — Middletown

Hydraulic Controls
Sperry Products Inc — Danbury

Industrial Finishes
Atlas Powder Co Zapon Div — Stamford
Chemical Coatings Corporation — Rocky Hill
United Chromium Incorporated — Waterbury

Industrial and Masking Tapes
Seamless Rubber Company The — New Haven

Infra-Red Equipment
Leeds Electric and Mfg Co The — Hartford

Insecticides
American Cyanamid Company — Waterbury
Darworth Incorporated ("Coracide" DDT Dispenser) — Simsbury

Insecticide Bomb
Bridgeport Brass Company (Aer*a*sol) — Bridgeport

Insulated Wire & Cable
Kerite Company The — Seymour

Instruments
Bristol Company The — Waterbury
J-B-T Instruments Inc (Electrical and Temperature) — New Haven
Manning Maxwell & Moore Inc — Bridgeport
Pratt & Whitney Div Niles-Bement-Pond Co (Precision Measuring) — West Hartford

Insulation
Gilman Brothers Co The — Gilman

Inter-Communications Equipment
Connecticut Telephone & Electric Division of Great American Industries Inc — Meriden

Interval Timers
Lux Clock Manufacturing Company — Waterbury
Rhodes Inc M H — Hartford

Ironing Machines—Electric
General Electric Company — Bridgeport

Jacquard
Case Brothers Inc — Manchester

Japanning
J H Sessions & Son — Bristol

Jig Borer
Moore Special Tool Co (Moore) — Bridgeport
Pratt & Whitney Div Niles-Bement-Pond Co — West Hartford

Jig Grinder
Moore Special Tool Co (Moore) — Bridgeport

Jointing
Raybestos Div of Raybestos-Manhattan Inc The (compressed sheets) — Bridgeport

Keller Machines
Pratt & Whitney Div Niles-Bement-Pond Co — West Hartford

Key Blanks
Corbin Cabinet Lock Div American Hardware Corp — New Britain
Sargent & Company — New Haven
Yale & Towne Manufacturing Company The — Stamford

Labels
J & J Cash Inc (Woven) — South Norwalk
Naugatuck Chemical Division United States Rubber Co (for rubber articles) — Naugatuck

Label Moisteners
Better Packages Inc — Shelton

Laboratory Equipment
Eastern Industries Inc — New Haven

Laboratory Supplies
Macalaster Bicknell Company — New Haven

Laces
Wilcox Lace Corp The — Middletown

Laces and Nettings
Wilcox Lace Corporation The — Middletown

Lacquers & Synthetic Enamels
Atlas Powder Co Zapon Div — Stamford
Baer Brothers — Stamford
Chemical Coatings Corporation — Rocky Hill
Dagmar Chemical Company Inc — Glenbrook
United Chromium Incorporated — Waterbury

Ladders
A W Flint Co — 196 Chapel St New Haven

Lamps
Plume & Atwood Mfg Co The (metal oil) — Waterbury

Lampholders—Incandescent and Fluorescent
General Electric Company — Bridgeport

Lamp Shades
Verplex Company The — Essex

Lathes—Contin-U-Matic
Bullard Company The (vertical multi-spindle-continuous turning type) — Bridgeport

Lathes—30H Man-Au-Trol
Bullard Company The (horizontal 3 spindle) — Bridgeport

Lathes—Mult-Au-Matic
Bullard Company The (vertical multi-spindle-indexing type) — Bridgeport

Lathes—Toolroom and Automatic
Pratt & Whitney Div Niles-Bement-Pond Co — West Hartford

Lathes—Vertical Turret
Bullard Company The (single spindle) — Bridgeport

Laundry Roll Covers
Atlas Powder Co Zapon Div — Stamford

Lead Plating
Christie Plating Co The — Groton

Leather
Herman Roser & Sons Inc (Genuine Pigskin) — Glastonbury
Geo A Shepard & Sons Co The (sheepskin, shoe upper, garment, grain and suede) — Bethel

Leather Dog Furnishings
Andrew B Hendryx Co The — New Haven
The Smith-Worthington Saddlery Co — Hartford

Leather Goods Trimmings
G E Prentice Mfg Co The — Kensington

Leather, Mechanical
Auburn Manufacturing Company The (packings, cubs, washers, etc) — Middletown

Letterheads
Lehman Brothers Inc (designers, engravers, lithographers) — New Haven

Lighting Accessories—Fluorescent
General Electric Company — Norfolk

Lights—Trouble
General Electric Company — Bridgeport

Lighting Equipment
Miller Co The (Miller, Duplexalite, Ivanhoe) — Meriden
United Manufacturing Co — New Haven

Lime
New England Lime Company — Canaan

Lipstick Containers
Bridgeport Metal Goods Mfg Co — Bridgeport

Lithographers
O'Toole & Sons Inc T — Stamford

Lithographing
Kellogg & Bulkeley A Division of Connecticut Printers Inc — Hartford
Lehman Brothers Inc — New Haven
A D Steinbach & Sons — New Haven

Locks—Banks
Yale & Towne Manufacturing Company The — Stamford

Locks—Builders
Eagle Lock Co The — Terryville
P & F Corbin Division The American Hardware Corp — New Britain
Sargent & Company — New Haven
Yale & Towne Manufacturing Company The — Stamford

Locks—Cabinet
Eagle Lock Co The — Terryville
Corbin Cabinet Lock Div American Hardware Corp — New Britain
Excelsior Hardware Co The — Stamford
Yale & Towne Manufacturing Company The — Stamford

Locks—Special Purpose
Eagle Lock Co The — Terryville
Yale & Towne Manufacturing Company The — Stamford

Locks—Suitcase
Eagle Lock Co The — Terryville

Locks—Suit-Case and Trimmings
Corbin Cabinet Lock Div American Hardware Corp — New Britain
Excelsior Hardware Co The — Stamford

Locks—Trunk
Eagle Lock Co The — Terryville
Yale & Towne Manufacturing Company The — Stamford
Excelsior Hardware Co The — Stamford
Yale & Towne Manufacturing Company The (and suitcase) — Stamford

Locks—Zipper
Excelsior Hardware Co The — Stamford

Loom—Non-Metallic
Wiremold Company The — Hartford

Luggage Fabric
Falls Company The — Norwich

Lumber & Millwork Products
City Lumber Co of Bridgeport Inc — Bridgeport

Machetes
Collins Company The — Collinsville

Machine Tools
Bullard Company The — Bridgeport
Pratt & Whitney Div Niles-Bement-Pond Co — West Hartford
Producto Machine Company The — Bridgeport

Machine Work
Farrel-Birmingham Company Inc — Ansonia
Fenn Manufacturing Company The (precision parts) — Hartford
Hartford Special Machinery Co The (contract work only) — Hartford
National Sherardizing & Machine Co (job) — Hartford
Parker Stamp Works Inc The (Special) — Hartford
Swan Tool & Machine Co The — Hartford
Torrington Manufacturing Co The (special rolling mill machinery) — Torrington

Machinery
Fenn Manufacturing Company The (special) — Hartford
Globe Tapping Machine Company (dial type drilling and tapping) — Bridgeport
Hallden Machine Company The (mill) — Thomaston
Torrington Manufacturing Co The (mill) — Torrington

Machinery—Bolt and Nut
Waterbury Farrel Foundry & Machine Co The — Waterbury

Machinery—Cold Heading
Waterbury Farrel Foundry & Machine Co The — Waterbury

Machinery Dealers & Rebuilders
Botwinik Brothers — New Haven
J L Lucas and Son — Fairfield
State Machinery Co Inc — New Haven

Machinery—Extruding
Standard Machinery Co The — Mystic

Machinery—Metal-Working
Bristol Metal-Working Equipment — Hartford
Waterbury Farrel Foundry & Machine Co The — Waterbury
Pratt & Whitney Div Niles-Bement-Pond Co — West Hartford

Machinery—Nut
Waterbury Farrel Foundry & Machine Co The (forming and tapping) — Waterbury

Machinery—Screw and Rivet
Waterbury Farrel Foundry & Machine Co The — Waterbury

Machinery—Wire Drawing
Waterbury Farrel Foundry & Machine Co The — Waterbury

Machinery—Wire Straightening
Mettler Machine Tool Inc — New Haven

Machines
Campbell Machine Div American Chain & Cable Co Inc (cutting & nibbling) — Bridgeport
Coulter & McKenzie Machine Co The (special, new development engineering design and construction) — Bridgeport
Patent Button Company The — Waterbury

Machines—Automatic
A H Nilson Mach Co The (Special) — Bridgeport

Machines—Automatic Chucking
Bullard Company The — Bridgeport
New Britain-Gridley Machine Division The New Britain Machine Co. (multiple spindle and double end) — New Britain
Pratt & Whitney Div Niles-Bement-Pond Co (Potter & Johnson) — West Hartford

(Advt.)

Machines—Automatic Screw
New Britain-Gridley Machine Division The New Britain Machine Co (single and multiple spindle) New Britain

Machines—Automatic Shaft Turning
Bullard Company The (30H lathe—horizontal 3 spindle) Bridgeport

Machines—Brushing
Fuller Brush Co The Hartford

Machines—Conveyor
Bullard Company The (Bullard-Dunn rotary conveyor indexing type) Bridgeport

Machines—Contin-U-Matic
Bullard Company The (vertical multi-spindle—continuous turning) Bridgeport

Machines—Draw Benches
Fenn Manufacturing Company The Hartford

Machines—Drill Spacing
Bullard Company The (Man-Au-Trol spacer—used in conjunction with radical drills) Bridgeport

Machines—Drop Hammers
Fenn Manufacturing Company The Hartford

Machines—Forming
A H Nilson Mach Co The (four-slide wire and ribbon stock) Bridgeport

Machines—Mult-Au-Matic
Bullard Company The Bridgeport

Machines—Paper Ruling
John McAdams & Sons Inc Norwalk

Machines—Pipe & Bolt Threading
Capewell Mfg Co The Hartford

Machines—Precision Boring
New Britain-Gridley Machine Division The New Britain Machine Co New Britain

Machines—Rolling
Fenn Manufacturing Company The Hartford

Machines—Slotting
Globe Tapping Machine Company The (High Production Screw Head Slotting) Bridgeport
Waterbury Farrel Foundry & Machine Co The (screw head) Waterbury

Machines—Special
Fuller Brush Co The Hartford

Machines—Swaging
Fenn Manufacturing Company The Hartford

Machines—Thread Rolling
Hartford Special Machinery Co The Hartford
Waterbury Farrel Foundry & Machine Co The Waterbury

Machines—Turks Head
Fenn Manufacturing Company The Hartford

Machines—Well Drilling
Consolidated Industries West Cheshire

Machines—Wire Drawing
Fenn Manufacturing Company The Hartford

Mail Boxes
Airline Manufacturing Company The Warehouse Point

Mail Boxes, Apartment & Residential
Corbin Cabinet Lock Div American Hardware Corp New Britain

Mailing Machines
Pitney-Bowes Inc Stamford

Manicure Instruments
W E Bassett Company The Derby

Manganese Bronze Ingot
Whipple and Choate Company Bridgeport

Marine Engines
Kilborn-Sauer Company (running lights and searchlights) Fairfield
Lathrop Engine Co The Mystic

Marine Equipment
Wilcox Crittenden & Co Inc Middletown

Marine Reserve Gears
Snow-Nabstedt Gear Corp The New Haven

Marking Devices
Hoggson & Pettis Mfg Co The New Haven
Parker Stamp Works Inc The (steel) Hartford

Matrices
W T Barnum & Co Inc New Haven

Mattresses
Waterbury Mattress Co Waterbury

Mechanics Hand Tool
Bridgeport Hdwe Mfg Corp The (screw drivers, wrenches, pliers, cold chisels, hammers, auto repair tools) Bridgeport

Metal Boxes and Displays
Durham Manufacturing Company The Durham
Merriam Mfg Co (Bond, Security, Cash, Utility, Personal Files, Drawer Safes.Custombilt containers and displays) Durham

Metal Cleaners
Apothecaries Hall Co Waterbury
Enthone Inc New Haven
MacDermid Incorporated Waterbury

Metal Cleaning Machines
Colt's Manufacturing Company Hartford

Metal Finishes
Enthone Inc New Haven
Mitchell-Bradford Chemical Co Bridgeport
United Chromium Incorporated Waterbury

Metal Finishing
National Sherardizing & Machine Co Hartford
Waterbury Plating Company Waterbury

Metal Formings
Master Engineering Company West Cheshire

Metalizing
Conn Metal Finishing Co Hamden

Metal Novelties
H C Cook Co The 32 Beaver St Ansonia

Metal Products—Stampings
American Brass Company The Waterbury
J H Sessions & Son Bristol
Scovill Manufacturing Company (Made-to-Order) Waterbury 91

Metal Specialties
Excelsior Hardware Co The Stamford

Metal Stampings
American Brass Company The Waterbury
Autoyre Co The (Small) Oakville
Bridgeport Chain & Mfg Co Bridgeport
DooVal Tool & Mfg Inc The Naugatuck
Excelsior Hardware Co The Stamford
Greist Mfg Co The 503 Blake St New Haven
H C Cook Co The 32 Beaver St Ansonia
Master Engineering Company West Cheshire
J A Otterbein Company The (metal fabrications) Middletown
J H Sessions & Son Bristol
Patent Button Co The Waterbury
G E Prentice Mfg Co The Kensington
Plume & Atwood Mfg Co The Waterbury
Saling Manufacturing Company Unionville
Stanley Works The New Britain
Swan Tool & Machine Co The Hartford
Verplex Company The (Contract) Essex
Waterbury Lock & Specialty Co The Milford

Meters—Gas
Sprague Meter Company Bridgeport

Meters—Parking
Rhodes Inc M H Hartford

Microscope—Measuring
Lundeberg Engineering Company Hartford

Milk Bottle Carriers
John P Smith Co The 423-33 Chapel St New Haven

Millboard
Raybestos Div of Raybestos-Manhattan Inc The (asbestos) Bridgeport

Millwork
Hartford Builders Finish Co Hartford

Milling Machines
Pratt & Whitney Div Niles-Bement-Pond Co (Keller Tracer—Controlled Milling Machines) West Hartford
Rowbottom Machine Company Inc (cam) Waterbury

Mill Supplies
Wilcox Crittenden & Co Inc Middletown

Minute Minders
Lux Clock Mfg Co The Waterbury

Mirror Rosettes and Hangers
Waterbury Companies Inc Waterbury

Mixing Equipment
Eastern Industries Inc New Haven

Mops
Fuller Brush Co The Hartford

Moulded Plastic Products
Colt's Manufacturing Company Hartford
Patent Button Co The Waterbury
Waterbury Companies Inc Waterbury
Watertown Mfg Co The 117 Echo Lake Road Watertown

Mouldings
Himmel Brothers Co The (architectural, metal and store front) Hamden

Moulds
ABA Tool & Die Co Manchester
Hoggson & Pettis Mfg Co The (steel) 114 Brewery St New Haven
Lundeberg Engineering Company (plastics) Hartford
Parker Stamp Works Inc The (compression injection & transfer for plastics) Hartford
Sessions Foundry Co The (heat resisting for non-ferrous metals) Bristol

Napper Clothing
Standard Card Clothing Co The (for textile mills) Stafford Springs

Nettings
Wilcox Lace Corp The Middletown

Nickel Anodes
Apothecaries Hall Co Waterbury
Seymour Mfg Co The Seymour

Nickel Silver
American Brass Company The Waterbury
Plume & Atwood Mfg Co The Thomaston
Seymour Mfg Co The Seymour
Waterbury Rolling Mills Inc (sheets, strips, rolls) Waterbury
Western Brass Mills Division of Olin Industries Inc (sheet, strip) New Haven

Nickel Silver Ingot
Whipple and Choate Company The Bridgeport

Night Latches
P & F Corbin Division The American Hardware Corp New Britain
Sargent & Company New Haven
Yale & Towne Manufacturing Company The Stamford

Non-Ferrous Scrap Metals
Whipple & Choate Company The Bridgeport

Non-ferrous Metal Castings
Miller Company The Meriden

Nuts, Bolts and Washers
Clark Brothers Bolt Co Milldale

Office Equipment
Pitney-Bowes Inc Stamford
Underwood Corporation Bridgeport & Hartford

Offset Printing
Kellogg & Bulkeley A Division of Connecticut Printers Inc Hartford

Oil Burners
Malleable Iron Fittings Co (domestic) Branford
Miller Company The (domestic) Meriden
Peabody Engineering Corp (Mechanical and /or Steam Atomizer) Stamford
Petroleum Heat & Power Co (domestic, commercial and industrial) Stamford
Silent Glow Oil Burner Corp The 1477 Park St Hartford

Oil Burner Wicks
Raybestos Div of Raybestos-Manhattan Inc The Bridgeport

Oil Tanks
Norwalk Tank Co The (550 to 30M gals, underwriters above and under ground) South Norwalk
Whitlock Manufacturing Co The Hartford

Optical Cores & Ingots
Plume & Atwood Mfg Co The Thomaston

Outlets—Electric
General Electric Company Bridgeport

Ovens—Electric
Bauer & Company Hartford

Package Sealers
Better Packages Inc Shelton

Packaging
Local Industries Inc (merchandising displays and packaging in wood) Lakeville

Packaging Machinery
Colt's Manufacturing Company (box making machinery. Trade mark "Rite Size") Hartford

Packing
Auburn Manufacturing Company The (leather, rubber, asbestos, fibre) Middletown
Raybestos Div of Raybestos-Manhattan Inc The (rubber sheet and automotive) Bridgeport

Padlocks
Corbin Cabinet Lock Div American Hardware Corp New Britain
Sargent & Company New Haven
Yale & Towne Manufacturing Company The Stamford
Waterbury Lock & Specialty Co The Milford

Paints
Baer Brothers Stamford

Paints and Enamels
Staminate Corp The New Haven

Panta
Moore Special Tool Co (crush wheel dresser) Bridgeport

Paperboard
Gair Company Inc Robert Montville
Robertson Paper Box Co Montville

Paper Boxes
Atlantic Carton Corp (folding) Norwich
Gair Co Inc Robert (folding) Montville
National Folding Box Co Inc (folding) New Haven
Mills Inc H J Bristol
Robertson Paper Box Co (folding) Montville

(Advt.)

Paper Boxes—Folding and Setup
Bridgeport Paper Box Company Bridgeport
M Backes' Sons Inc Wallingford

Paper Clips
H C Cook Co The (steel) 32 Beaver St Ansonia

Paper Mill Machinery
Farrel-Birmingham Company Inc Ansonia

Paper Tubes and Cores
Sonoco Products Co (Climax-Lowell) Div Mystic

Parallel Tubes
Sonoco Products Co (Climax-Lowell Div) Mystic

Parkerizing
Clairglow Mfg Company Portland

Parking Meters
Rhodes Inc M H Hartford

Pattern-Makers
Farrel-Birmingham Company Inc Ansonia

Penlights
Bridgeport Metal Goods Mfg Co Bridgeport

Pet Furnishings
Andrew B Hendrix Co The New Haven

Pharmaceutical Specialties
Ernst Bischoff Company Inc Ivoryton

Phosphor Bronze
American Brass Company The Waterbury
Miller Company The (sheets, strips, rolls) Meriden
Seymour Mfg Co The Seymour
Waterbury Rolling Mills Inc (sheets, strips, rolls) Waterbury
Western Brass Mills Division of Olin Industries Inc (sheet, strip) New Haven

Phosphor Bronze Ingots
Whipple and Choate Company The Bridgeport

Photographic Equipment
Kalart Company Inc Plainville

Piano Repairs
Pratt Read & Co Inc (keys and action) Ivoryton

Piano Supplies
Pratt Read & Co (keys and actions, backs, plates) Ivoryton

Pile Fabrics
Sidney Blumenthal & Co Inc (For furniture, automobiles, railroads, women's wear, toys) Shelton

Pin Up Lamps
Verplex Company The Essex

Pipe
American Brass Co The (brass and copper) Waterbury
Bridgeport Brass Co (brass and copper) Bridgeport
Chas Brass & Copper Co (red brass and copper) Waterbury
Crane Company (fabricated) Bridgeport
Howard Co (cement well and chimney) New Haven

Pipe Fitters' Hand Tools & Machines
Capewell Mfg Co The Hartford

Pipe Fittings
Corley Co Inc Plainville
Malleable Iron Fittings Co Branford

Pipe Plugs
Holo-Krome Screw Corporation The (countersunk) West Hartford

Pipe Plugs—Socketed
Holo-Krome Screw Corp The West Hartford

Plastics
Naugatuck Chemical Division United States Rubber Co Naugatuck
Sponge Rubber Products Co Inc (expanded cellular) Shelton

Plastic Buttons
Frank Parizek Manufacturing Co The West Willington
Patent Button Co The Waterbury

Plastic Gems
Colt's Manufacturing Company Hartford

Plastics Machinery
Farrel-Birmingham Company Inc Ansonia

Plastic—Moulders
Colt's Manufacturing Company Hartford
Conn Plastics Waterbury
General Electric Company Meriden
Geo S Scott Mfg Co The Wallingford
Waterbury Companies Inc Waterbury
Watertown Mfg Co The Watertown

Plastics—Moulds & Dies
Parker Stamp Works Inc The (for plastics)

Plasticrete Bloc
Plasticrete Corp Hamden

Plates—Switch
General Electric Company Bridgeport

Platers
American Metal Products Company Inc Bridgeport
Christie Plating Co Groton
City Plating Works Bridgeport
Patent Button Co The Waterbury
Waterbury Plating Company Waterbury
Chromjum Process Company The (Chromium Plating only) Derby

Platers' Equipment
Apothecaries Hall Company Waterbury
Conn Metalcraft Inc New Haven
Lea Manufacturing Co The Waterbury
MacDermid Incorporated Waterbury

Platers Metal
Plume & Atwood Mfg Co The Thomaston

Plating
Christie Plating Co The (including lead plating) Groton
Conn Metal Finishing Co Hamden

Plating Processes and Supplies
Enthone Inc New Haven
United Chromium Incorporated Waterbury

Plumbers' Brass Goods
Bridgeport Brass Co Bridgeport
Keeney Mfg Co The (special bends) Newington
Scovill Manufacturing Company Waterbury 48

Plumbing Specialties
John M Russell Mfg Co Inc Naugatuck

Pole Line Hardware
Malleable Iron Fittings Co Branford

Police Equipment
The Smith-Worthington Saddlery Co Hartford

Polishing Wheels
Williamsville Buff Div The Bullard Clark Company Danielson

Poly Chokes
Poly Choke Company The (a shotgun choking device) Tariffville

Postage Meters
Pitney-Bowes Inc Stamford

Power Presses
Fenn Manufacturing Company The Hartford

Powered Metal Products
American Sintered Alloys Inc Bethel
Waterbury Companies Inc Waterbury

Prefabricated Buildings
City Lumber of Bridgeport Inc The Bridgeport

Premium Specialties
Waterbury Companies Inc Waterbury

Preservatives—Wood, Rope, Fabric
Darworth Incorporated ("Cuprinol") Simsbury

Press Papers
Case Brothers Inc Manchester

Presses
Farrel-Birmingham Company Inc (Hydraulic) Ansonia
Henry & Wright Division of Hartford-Empire Company (automatic mechanical) Hartford

Presses—Molding
Standard Machinery Co The (compression and transfer molding, automatic and semi-automatic) Mystic

Presses—Power
Waterbury Farrel Foundry & Machine Co The Waterbury

Pressure Vessels
Norwalk Tank Co Inc The (unfired to ASME Code Par U 69-70) South Norwalk
Whitlock Manufacturing Co The Hartford

Printing
Case Lockwood & Brainard A Division of Connecticut Printers Inc Hartford
Finlay Brothers Hartford
Heminway Corporation The Waterbury
Hunter Press Hartford
Lehman Brothers Inc New Haven
Taylor & Greenough Co The Wethersfield
T B Simonds Inc Hartford
A D Steinbach & Sons New Haven
The Walker-Rackliff Company New Haven

Printing Machinery
Banthin Engineering Co (automatic) Bridgeport
Thomas W Hall Company Stamford

Printing Rollers
Chambers-Storck Company Inc The (engraved) Norwich

Production Control Equipment
United Cinephone Corporation Torrington
Wassell Organization (Produc-Trol) Westport

Production Welding
Consolidated Industries West Cheshire

Profilers
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Propellers—Aircraft
Hamilton Standard Propellers Div United Aircraft Corp East Hartford

Publishers
O'Toole & Sons Inc T Stamford

Pumps
Yale & Towne Manufacturing Company The (Tri-rotor) Stamford

Pumps—Small Industrial
Eastern Industries Inc New Haven

Pump Valves
Colt's Manufacturing Company Hartford

Punches
Hoggson & Pettis Mfg Co The (ticket & cloth) 141 Brewery St New Haven

Putty Softeners—Electrical
Fletcher Terry Co The Box 415 Forestville

Pyrometers
Bristol Co The (recording and controlling) Waterbury

Quartz Crystals
Crystal Research Laboratories Inc Hartford

Radiation—Baseboard Convectors
Hoff Manufacturing Company Bethany

Radiation-Finned Copper
Bush Manufacturing Co West Hartford
G & O Manufacturing Company The New Haven
Vulcan Radiator Co The (steel and copper) Hartford

Radiators—Engine Cooling
G & O Manufacturing Co New Haven

Radio and Television Components
General Electric Company Bridgeport

Radio Receivers
General Electric Company Bridgeport

Rayon Specialties
Hartford Rayon Corporation The Rocky Hill

Rayon Yarns
Hartford Rayon Corporation The Rocky Hill

Reamers
O K Tool Co Inc The (inserted tooth) 33 Hull St Shelton
Pratt & Whitney Div Niles-Bement-Pond Co (All types) West Hartford

Recorders
Bristol Co The (automatic controllers, temperature, pressure, flow, humidity) Waterbury

Reduction Gears
Farrel-Birmingham Company Inc Ansonia
Snow-Nabstedt Gear Corp The New Haven

Refractories
Howard Company New Haven
Mullite Refractories Company The Shelton

Refrigeration
Bowser Technical Refrigeration Div Bowser Inc (high altitude, low temperature) Terryville

Regulators
Norwalk Valve Company (for gas and air) South Norwalk
Sorensen & Company Inc Stamford

Resistance Wire
C O Jelliff Mfg Co The (nickel, chromium, kanthal) Southport

Respirators
American Optical Company Safety Division Putnam

Retainers
Hartford Steel Ball Co The (bicycle & automotive) Hartford

Riveting Machines
Grant Mfg & Machine Co The Bridgeport
H P Townsend Manufacturing Co The Elmwood
L-R Mfg Div of The Ripley Co Torrington
Raybestos Div of Raybestos-Manhattan Inc The (brake service equipment) Bridgeport

Rivets
Blake & Johnson Co The (brass, copper and non-ferrous) Waterville
Clark Brothers Bolt Co Milldale
Connecticut Manufacturing Company The Waterbury
Plume & Atwood Mfg Co The Waterbury
J H Sessions & Sons Bristol
Raybestos Div of Raybestos-Manhattan Inc The (brass and aluminum tubular and solid copper) Bridgeport
Raybestos Div of Raybestos-Manhattan Inc The (iron) Bridgeport

(Advt.)

Roasters—Electric
General Electric Company Bridgeport

Rods
American Brass Company The (copper, brass, bronze) Waterbury
Bristol Brass Corp The (brass and bronze) Bristol
Scovill Manufacturing Company (brass and bronze) Waterbury 91

Roller Skates
Winchester Repeating Arms Company Division Olin Industries Inc New Haven

Rolling Mills and Equipment
Farrel-Birmingham Company Inc Ansonia
Waterbury Farrel Foundry & Machine Co The Waterbury

Rolls
Farrel-Birmingham Company Inc (Chilled and Alloy Iron, Steel) Ansonia

Rope Wire
American Steel & Wire Div of U S Steel New Haven

Rubber Chemicals
Naugatuck Chemical Division United States Rubber Co Naugatuck
Stamford Rubber Supply Co The ("Factice" Vulcanized Vegetable Oils) Stamford

Rubber—Cellular
Sponge Rubber Products Co Inc Shelton

Rubberized Fabrics
Duro-Gloss Rubber Co The New Haven

Rubber Footwear
Goodyear Rubber Co The Middletown
United States Rubber Company (Keds, Kedettes, Gaytees, U S Royal Footwear) Nugatuck

Rubber Gloves
Seamless Rubber Company The New Haven

Rubber Heels
Danbury Rubber Co Inc The Danbury

Rubber Latex Compounds and Dispersions
Naugatuck Chemical Division United States Rubber Co (coating, impregnating and adhesive compounds) Naugatuck

Rubber Mill Machinery
Farrel-Birmingham Company Inc Ansonia

Rubber Products, Mechanical
Auburn Manufacturing Company The (washers, gaskets, molded parts) Middletown
Canfield Co The H O Bridgeport

Rubber—Reclaimed
Naugatuck Chemical Division United States Rubber Co Naugatuck

Rubber Soles
Danbury Rubber Co Inc The Danbury

Rubber Tile
Danbury Rubber Co Inc The Danbury

Rubbish Burners
John P Smith Co The 423-33 Chapel St New Haven

Saddlery
The Smith-Worthington Saddlery Co Hartford

Safety Clothing
American Optical Company Safety Division Putnam

Safety Fuses
Ensign-Bickford Co The (mining & detonating) Simsbury

Safety Gloves and Mittens
American Optical Company Safety Division Putnam

Safety Goggles
American Optical Company Safety Division Putnam

Sandwich Grills—Electric
General Electric Company Bridgeport

Saw Blades—Hack
Capewell Mfg Co The Hartford

Saws—Metal & Wood Cutting Band
Capewell Mfg Co The Hartford

Saws, Band, Metal Cutting
Atlantic Saw Mfg Co New Haven

Scales—Industrial Dial
Kron Company The Bridgeport

Scissors
Acme Shear Company The Bridgeport

Screens
Hartford Wire Works Co The (Windows, Doors and Porches) Hartford

Screw Caps
Weimann Bros Mfg Co The (small for bottles) Derby

Screw Machines
H P Townsend Mfg Company The Elmwood

Screw Machine Accessories
Barnaby Manufacturing and Tool Company Bridgeport

Screw Machine Products
Apex Tool Co Inc The Bridgeport
Blake & Johnson Co The Waterville
Centerless Grinding Co Inc The (Heat treated and ground type only)
19 Staples Street Bridgeport
Connecticut Manufacturing Company The Waterbury
Consolidated Industries West Cheshire
Eastern Machine Screw Corp The
Truman & Barclay Sts New Haven
Fairchild Screw Products Inc Winsted
Franklin Screw Machine Co The (up to 1½" capacity) Hartford
Greist Mfg Co The (Up to 1¼" capacity) New Haven
Humason Mfg Co The Forestville
Lowe Mfg Co The Wethersfield
National Automatic Products Company The Berlin
Nelson's Screw Machine Products Plantsville
New Britain Machine Company The New Britain
Olson Brothers Company (up to ¼" capacity) Plainville
Olson & Sons R P Southington
Peck Spring Co The Plainville
Plume & Atwood Mfg Co The Waterbury
Scovill Manufacturing Company Waterbury 91
Wallace Metal Products Co Inc New Haven
Waterbury Machine Tools & Products Co (B & S & Swiss type automatic) Waterbury
Waterville Mfg Co The Waterville
Watkins Manufacturing Co Inc Milford

Screw Machine Tools
American Cam Company Inc (Circular Form Tools) Hartford
Pratt & Whitney Div Niles-Bement-Pond Co (Reamers, Taps, Dies, Blades and Knurls) West Hartford
Somma Tool Co (precision circular form tools) Waterbury

Screws
American Screw Company Willimantic
Atlantic Screw Works (wood) Hartford
Blake & Johnson Co The (machine and wood) Waterville
Bristol Company The (socket set and socket cap screws) Waterbury
Clark Brothers Bolt Co Milldale
Connecticut Mfg Co The (machine) Waterbury
Eagle Lock Co The Terryville
Holo-Krome Screw Corporation The (socket set and socket cap) West Hartford
Scovill Manufacturing Company Waterbury 91
Superior Manufacturing Co The Winsted

Screws—Sockets
Allen Manufacturing Company The Hartford
Holo-Krome Screw Corp The West Hartford

Sealing Tape Machines
Better Packages Inc Shelton

Sewing Machines
Greist Mfg Co The (Sewing Machine attachments) 503 Blake St New Haven
Merrow Machine Co The (Industrial) Hartford
Singer Manufacturing Company The (industrial) Bridgeport

Shaving Soaps
J B Williams Co The Glastonbury

Shears
Acme Shear Co The (household) Bridgeport

Shells
Wolcott Tool and Manufacturing Company Inc Waterbury

Sheet Metal Products
Airline Manufacturing Company The Warehouse Point
American Brass Co The (brass and copper) Waterbury
Merriam Mfg Co (security boxes, fitted tool boxes, tackle boxes, displays) Durham
Plume & Atwood Mfg Co The Waterbury
United Advertising Corp Manufacturing Division (Job and Production Runs) New Haven

Sheet Metal Stampings
American Brass Company The Waterbury
American Buckle Co The West Haven
DooVal Tool & Mfg Inc The Naugatuck
J H Sessions & Son Bristol
Patent Button Co The Waterbury
Plume & Atwood Mfg Co The Waterbury

Shipment Sealers
Better Packages Inc Shelton

Showcase Lighting Equipment
Wiremold Company The Hartford

Signals
H C Cook Co The (for card files)
32 Beaver St Ansonia

Silk Screening on Metal
Merriam Mfg Co (Displays and Specialties, to order) Durham

Sizing and Finishing Compounds
American Cyanamid Company Waterbury

Slide Fasteners
G E Prentice Mfg Co The Kensington
North & Judd Manufacturing Co New Britain
Patent Button Co The Waterbury

Slings
American Steel & Wire Div of U S Steel New Haven

Smoke Stacks
Bigelow Company The (steel) New Haven

Soap
J B Williams Co The (industrial soaps, toilet soaps, shaving soaps) Glastonbury

Solder—Soft
Torrey S Crane Company Plantsville

Special Machinery
Farrel-Birmingham Company Inc Ansonia
Henry & Wright Division of Hartford-Empire Company Hartford
H P Townsend Mfg Company The Elmwood
Lundeberg Engineering Company Hartford
National Sheradizing & Machine Co (mandrels & stock shells for rubber industry) Hartford
Swan Tool & Machine Co The Hartford

Special Parts
Greist Mfg Co The (small machines, especially precision stampings) New Haven
J H Sessions & Son Bristol

Special Industrial Locking Devices
Corbin Cabinet Lock Div American Hardware Corp New Britain

Special Tools & Dies
Lundeberg Engineering Company Hartford

Spinnings
American Metal Products Company Inc Bridgeport
Gray Manufacturing Company The Hartford

Sponge Rubber
Sponge Rubber Products Co The Shelton
United States Rubber Company Naugatuck

Spray Painting Equipment and Supplies
Lea Manufacturing Co The Waterbury

Spring Coiling Machines
Bowden Engineering Co (Torsion) Bristol
Torrington Manufacturing Co The Torrington

Spring Units
Owen Silent Spring Division American Chain & Cable Company Inc Bridgeport

Spring Washers
Wallace Barnes Co The Div Associated Spring Corp Bristol

Springs—Coil & Flat
Bristol Spring Manufacturing Co Plainville
Foursome Manufacturing Company Bristol
Han-Dee Spring and Manufacturing Co The (Coil and Flat) Hartford
Humason Mfg Co The Forestville
Newcomb Spring Corp The Bridgeport Division Bridgeport
New England Spring Manufacturing Company Unionville
Peck Spring Co The Plainville
Wallace Barnes Co The Div Associated Spring Corp Bristol

Springs—Flat
Bristol Spring Manufacturing Co Plainville
Foursome Manufacturing Company Bristol
Wallace Barnes Co The Div Associated Spring Corp Bristol
New England Spring Manufacturing Company Unionville

Springs—Furniture
Owen Silent Spring Division American Chain & Cable Company Inc Bridgeport

Springs—Wire
Bristol Spring Manufacturing Co Plainville
Colonial Spring Corporation The Hartford
Connecticut Spring Corporation The (compression, extension, torsion) Hartford
D R Templeman Co (coil and torsion) Plainville
Foursome Manufacturing Company Bristol
J W Bernston Company (coil and torsion) Unionville
Newcomb Spring Corp The Bridgeport Division Bridgeport
New England Spring Mfg Co
Wallace Barnes Co The Div Associated Spring Corp Bristol

Springs, Wire & Flat
Autoyre Company The Oakville

Stamped Metal Products
American Brass Company The Waterbury
Waterbury Companies Inc Waterbury

(Adv.)

Stamps
Hoggson & Pettis Mfg Co The (steel) 141 Brewery St New Haven
Parker Stamp Works Inc The (steel) Hartford

Stampings
American Metal Products Company Inc Bridgeport
Donahue Mfg Co. Inc Watertown
DooVal Tool & Mfg Inc The Naugatuck
Han-Dee Spring and Manufacturing Co The (small) Hartford
Plume & Atwood Mfg Co The (small) Waterbury

Stampings—Small
Acme Shear Co The Bridgeport
American Metal Products Company Inc Bridgeport
Bristol Spring Manufacturing Co Plainville
Foursome Manufacturing Co The New Haven
Greist Manufacturing Co The New Haven
Master Engineering Company West Cheshire
Rogers Corporation (Fibre Cellulose Paper) Manchester
Wallace Barnes Co The Div Associated Spring Corp Bristol

Stationery Specialties
American Brass Company The Waterbury

Steel
Stanley Works The (hot and cold rolled strip) New Britain

Steel Castings
Farrel-Birmingham Company Inc Ansonia
Hartford Electric Steel Co The (carbon and alloy steel) 540 Flatbush Ave Hartford
Malleable Iron Fittings Co Branford
Nutmeg Crucible Steel Co Branford

Steel—Cold Rolled Spring
Wallace Barnes Co The Div Associated Spring Corp Bristol

Steel—Cold Rolled Stainless
Wallingford Steel Company Wallingford

Steel—Cold Rolled Strip and Sheets
American Steel & Wire Div of U S Steel New Haven
Detroit Steel Corporation New Haven
Wallingford Steel Company Wallingford

Steel Goods
Merriam Mfg Co (sheets products to order) Durham

Steel Rolling Rules
Waterbury Lock & Specialty Co The Milford

Steel Strapping
Stanley Works The New Britain

Stereotypes
W T Barnum & Co Inc New Haven
New Haven Electrotype Div Electrographic Corp New Haven

Stop Clocks, Electric
H C Thompson Clock Co The Bristol

Straps, Leather
Auburn Manufacturing Company The (textile, industrial, skate, carriage) Middletown

Studio Couches
Waterbury Mattress Co Waterbury

Super Refractories
Mullite Refractories Company The Shelton

Surface Metal Raceways & Fittings
Wiremold Company The Hartford

Surgical Dressings
Acme Cotton Products Co Inc East Killingly
Seamless Rubber Company The New Haven

Surgical Rubber Goods
Seamless Rubber Company The New Haven

Switches—Electric
General Electric Company Bridgeport

Swaging Machinery
Hartford Special Machinery Co The Hartford

Switchboards
Plainville Electrical Products Company Plainville

Switchboards Wire and Cables
Rockbestos Products Corp (asbestos insulated) New Haven

Synchronous Motors
R W Cramer Company Inc The Centerbrook

Tanks
Bigelow Company The (steel) New Haven
Storts Welding Company (steel and alloy) Meriden

Tape
Russell Mfg Co The Middletown

Tap Extractors
Walton Company The West Hartford

Taps
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Tarred Lines
Brownell & Co Inc Moodus

Telemetering Instruments
Bristol Co The Waterbury

Television Receivers
General Electric Company Bridgeport

Testers—Non-Destructive
Sperry Products Inc Danbury

Textile Machinery
Merrow Machine Co The 2814 Laurel St Hartford

Textile Mill Supplies
Ernst Bischoff Company Inc Ivoryton

Textile Processors
American Dyeing Corporation (rayon, acetate) Rockville
Aspinook Corp The (cotton) Jewett City

Thermometers
Bristol Co The (recording and automatic control) Waterbury
Manning Maxwell & Moore Inc Bridgeport

Thermostats
Bridgeport Thermostat Company Inc (automatic) Bridgeport

Thin Gauge Metals
Plume & Atwood Mfg Co The Thomaston
Thinsheet Metals Co The (plain or tinned in rolls) Waterbury

Thread
American Thread Co The Willimantic
Belding Heminway Corticelli Putnam
Gardner Hall Jr Co The (cotton sewing) South Willington
Max Pollack & Co Inc Groton and Willimantic
Wm Johl Manufacturing Co Mystic

Thread Gages
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Thread Milling Machines
Pratt & Whitney Div Niles-Bement-Pond Co West Hartford

Thread Rolling Machinery
Hartford Special Machinery Co The Hartford

Threading Machines
Grant Mfg & Machine Co The (double and automatic) Bridgeport

Time Recorders
Stromberg Time Corp Thomaston

Timers, Interval
A W Haydon Co The Waterbury
H C Thompson Clock Co The Bristol
R W Cramer Company Inc The Centerbrook
Rhodes Inc M H Hartford

Timing Devices
A W Haydon Co The Waterbury
R W Cramer Company Inc The Centerbrook
Lux Clock Manufacturing Company Waterbury
Rhodes Inc M H Hartford
Seth Thomas Clocks Thomaston
United States Time Corporation The Waterbury

Timing Devices & Time Switches
A W Haydon Co The Waterbury
Lux Clock Manufacturing Company Waterbury
M H Rhodes Inc Hartford

Timing Mechanisms
Gilbert Clock Corp The William L Winsted

Tinning
Thinsheet Metals Co The (non-ferrous metals in rolls) Waterbury
Wilcox Crittenden & Co Inc Middletown

Tools
Hoggson & Pettis Mfg Co The (rubber workers) 141 Brewery St New Haven
O K Tool Co Inc The (inserted tooth metal cutting) 33 Hull St Shelton

Tool Chests
Vanderman Manufacturing Co The Willimantic

Tools & Dies
Moore Special Tool Co Bridgeport
Swan Tool & Machine Co The Hartford

Tools, Dies & Fixtures
Fonda Gage Company (also jigs) Stamford
Greist Mfg Co The New Haven

Tools, Hand & Mechanical
Bridgeport Hardware Mfg Corp The (screw drivers, nail pullers, box tools, wrenches, auto tools, forgings & specialties) Bridgeport

Tools—Pipe Fitters' Hand
Capewell Mfg Co The Hartford

Toys
A C Gilbert Company New Haven
Geo S Scott Mfg Co The Wallingford
Gong Bell Co The East Hampton
N N Hill Brass Co The East Hampton
Waterbury Companies Inc Waterbury

Tramways
American Steel & Wire Div of U S Steel New Haven

Trucks—Commercial
Metropolitan Body Company (International Harvester truck chassis and "Metro" bodies) Bridgeport

Trucks—Industrial
George P Clark Co Windsor Locks

Trucks—Lift
Excelsior Hardware Co The Stamford
George P Clark Co Windsor Locks

Trucks—Skid Platforms
Excelsior Hardware Co The (lift) Stamford

Tube Bending
Donahue Mfg Co Inc Watertown

Tube Clips
H C Cook Co The (for collapsible tubes) 32 Beaver St Ansonia
Weimann Bros Mfg Co The (for collapsible tubes) Derby

Tube Fittings
Scovill Mfg Co ("Uniflare") Waterbury

Tubers
Standard Machinery Co The (tubers for both rubber and plastic industries) Mystic

Tubes—Collapsible Metal
Sheffield Tube Corp The New London

Tubing
American Brass Co The (brass and copper) Waterbury
Bridgeport Brass Company (brass and copper) Bridgeport
G & O Manufacturing Co (finned) New Haven
Scovill Manufacturing Company (Brass and Copper) Waterbury 91

Tubing—Flexible Metallic
American Brass Co Metal Hose Branch Waterbury

Tubing—Heat Exchanger
American Brass Company The Waterbury
Scovill Manufacturing Company Waterbury 91

Typewriters
Royal Typewriter Co Inc Hartford
Underwood Corporation Hartford

Typewriters—Portable
Underwood Corporation Hartford

Typewriter Ribbons and Supplies
Underwood Corporation Hartford and Bridgeport

Underclearer Rolls
Sonoco Products Co (Climax-Lowell Div) Mystic

Upholstering Fabrics—Woolen & Worsted
Broad Brook Company (automobile, airplane, railroad) Broad Brook
(Advt.)

Vacuum Bottles and Containers
American Thermos Bottle Co — Norwich

Vacuum Cleaners
Electrolux Corporation — Old Greenwich
Spencer Turbine Co The — Hartford

Valves
Norwalk Valve Company (sensitive check valves) — South Norwalk

Valve Discs
Colt's Manufacturing Company — Hartford

Valves—Automobile Tire
Bridgeport Brass Company — Bridgeport

Valves—Radiator Air
Bridgeport Brass Company — Bridgeport

Valves—Relief & Control
Beaton & Cadwell Mfg Co — New Britain

Valves—Safety & Relief
Manning Maxwell & Moore Inc — Bridgeport

Vanity Boxes
Bridgeport Metal Goods Mfg Co — Bridgeport

Varnishes
Baer Brothers — Stamford
Staminite Corp The — New Haven

Velvets
American Velvet Co (owned and operated by A Wimpfheimer & Bro Inc) — Stonington
Leiss Velvet Mfg Co Inc The — Willimantic
Velvet Textile Corporation The (velveteen) — West Haven

Venetian Blinds
New England Shade & Blind Co Inc — Durham
Findell Manufacturing Company — Manchester

Ventilating Systems
Colonial Blower Company — Plainville

Vertical Shapers
Pratt & Whitney Div Niles-Bement-Pond Co — West Hartford

Vibrators—Pneumatic
New Haven Vibrator Company (industrial) — New Haven

Vises
Charles Parker Co The — Meriden
Fenn Manufacturing Company The (Quick-Action Vises) — Hartford
Vanderman Manufacturing Co The (Combination Bench Pipe) — Willimantic

Waffle Irons—Electric
General Electric Company — Bridgeport

Washers
American Felt Co (felt) — Glenville
Auburn Manufacturing Company The (all materials) — Middletown
Blake & Johnson The (brass, copper & nonferrous) — Waterville
Clark Brothers Bolt Co — Milldale
J H Sessions & Son — Bristol
Plume & Atwood Mfg Co The (brass & copper) — Waterbury
Raybestos Div of Raybestos-Manhattan Inc The clutch washers) — Bridgeport
J H Rosenbeck Inc — Torrington
Saling Manufacturing Company (made to order) — Unionville
Sessions Foundry Co The (cast iron) — Bristol

Washers—Felt
Chas W House & Sons Inc (Mills & Cutting Plant) — Unionville

Washing Machines—Electric
General Electric Company — Bridgeport

Watches
E Ingraham Co The — Bristol
United States Time Corporation The — Waterbury

Water Heaters
Whitlock Manufacturing Co The (instantaneous & storage) — Hartford

Water Heaters—Electric
Bauer & Company Inc — Hartford

Water Heaters—Gas or Kerosene
Holyoke Heater Corp. of Conn., Inc — Hartford

Waterproof Dressings for Leather
Viscol Company The — Stamford

Waxes—Floor
Fuller Brush Co The — Hartford

Wedges
Saling Manufacturing Company (hammer & axe) — Unionville

Welding
Farrel-Birmingham Company Inc — Ansonia
G E Wheeler Company (Fabrication of Steel & Non-Ferrous Metals) — New Haven
Industrial Welding Company (Equipment Manufacturers—Steel Fabricators) — Hartford
Porupine Company The — Bridgeport

Welding—Lead
Storts Welding Company (tanks and fabrication) — Meriden

Welding Rods
American Brass Company The — Waterbury
Bristol Brass Co The (brass & bronze) — Bristol

Wheels—Industrial
George P Clark Co — Windsor Locks

Wicks
Auburn Manufacturing Company The (felt, asbestos) — Middletown
Holyoke Heater Corp. of Conn., Inc — Hartford
Raybestos Div of Raybestos-Manhattan Inc The oil burner wicks) — Bridgeport
Russell Mfg Co The — Middletown

Window & Door Guards
Hartford Wire Works Co The — Hartford
Smith Co The John P — New Haven

Window Shades
New England Shade & Blind Co Inc — Durham

Wiping Cloths
Federal Textile Corporation — New Haven

Wire
American Brass Company The — Waterbury
American Steel & Wire Div of U S Steel — New Haven
Atlantic Wire Co The (steel) — Branford
Bartlett Hair Spring Wire Co The (hair spring) — North Haven
Bridgeport Brass Company (brass and silicon bronze) — Bridgeport
Bristol Brass Corp The (brass & bronze) — Bristol
Driscoll Wire Co The (steel) — Shelton
Hudson Wire Co Winsted Div (insulated & enameled magnet) — Winsted
Platt Bros & Co The (zinc wire) P O Box 1030 — Waterbury
Plume & Atwood Mfg Co The (brass, bronze, nickel silver) — Thomaston
Scovill Manufacturing Company (Brass, Bronze and Nickel Silver) — Waterbury 91

Wire Arches & Trellises
Hartford Wire Works Co The — Hartford
John P Smith Co The 423-33 Chapel St — New Haven

Wire Baskets
Rolock Inc (Industrial—for acid, heat, degreasing) — Fairfield
Wiretex Mfg Co Inc (Industrial, for acid, heat, treating and degreasing) — Bridgeport

Wire Cable
Bevin-Wilcox Line Co The (braided) — East Hampton

Wire Cloth
Hartford Wire Works Co The — Hartford
C O Jelliff Mfg Co The (all metal, all meshes) — Southport
Pequot Wire Cloth Co Inc — Norwalk
Rolock Incorporated — Fairfield
Smith Co The John P — New Haven

Wire Drawing Dies
Waterbury Wire Die Co The — Waterbury

Wire Dipping Baskets
Hartford Wire Works Co The — Hartford
John P Smith Co The 423-33 Chapel St — New Haven

Wire Formings
Autoyre Co The — Oakville
G E Prentice Mfg Co The — Kensington
Master Engineering Company — West Cheshire
North & Judd Manufacturing Co — New Britain
Verplex Company The — Essex

Wire Forms
Bristol Spring Manufacturing Co — Plainville
Colonial Spring Corporation The — Hartford
Connecticut Spring Corporation The — Hartford
Foursome Manufacturing Company — Bristol
Humason Mfg Co The — Forestville
New England Spring Mfg Co — Unionville
Templeman Co D R — Plainville
Wallace Barnes Co The Div Associated Spring Corp — Bristol

Wire Goods
American Buckle Co The (overall trimmings) — West Haven
Patent Button Co The — Waterbury
Scovill Manufacturing Company (To Order) — Waterbury 91

Wire Partitions
Hartford Wire Works Co The — Hartford
John P Smith Co The 423-33 Chapel St — New Haven

Wire Products
Clairglow Mfg Company — Portland
Plume & Atwood Mfg Co The (to order) — Waterbury

Wire Reels
A H Nilson Mach Co The — Bridgeport

Wire Rings
American Buckle Co The (pan handles and tinners' trimmings) — West Haven
Templeman Co D R — Plainville

Wire Rope and Strand
American Steel & Wire Div of U S Steel — New Haven

Wire Shapes
Bridgeport Chain & Mfg Co — Bridgeport

Wire—Specialties
Andrew B Hendryx Co The — New Haven

Wires and Cable
General Electric Company (for central stations, industrial and mining applications) — Bridgeport
Rockbestos Products Corporation (asbestos insulated) — New Haven

Wires—Building
General Electric Company — Bridgeport

Wires—Telephone
General Electric Company — Bridgeport

Wood Handles
Salisbury Cutlery Handle Co The (for cutlery & small tools) — Salisbury

Wood Scrapers
Fletcher-Terry Co The — Forestville

Woodwork
C H Dresser & Sons Inc (Mfg all kinds of woodwork) — Hartford
Hartford Builders Finish Co — Hartford

Woodworking
Local Industries Inc — Lakeville

Woven Awning Stripes
Falls Company The — Norwich

Woven Felts—Wool
Chas W House & Sons Inc (Mills & Cutting Plant) — Unionville

Yarns
Hartford Spinning Incorporated (Woolen, knitting and weaving yarns) — Unionville
Aldon Spinning Mills Corporation The (fine-woolen and specialty) — Talcottville
Ensign-Bickford Co The (jute carpet) — Simsbury

Zinc
Platt Bros & Co The (ribbon, strip and wire) P O Box 1030 — Waterbury

Zinc Castings
Newton-New Haven Co Inc — 688 Third Ave West Haven (Advt.)

Industrial Training in the Aircraft Industry

(Continued from page 11)

IV. The Present Program

In the present program, the Training Department is divided into three more or less distinct parts, and the three men in charge of these sections report directly and independently to the Supervisor of Training.

Grover I. Mitchell is in charge of the Machine Training School on Prospect Street in Hartford. This school conducts most of the full-time mechanical or technical training courses. For new employees, the school provides a two-week machine-operator course, a three-week sheet-metal-worker course, a welding course of indeterminate length depending upon individual ability, and a two-week inspection course. For the employee who is to be upgraded, there are advanced courses in each of these fields. There is also a six-week and an eight-week course for prospective leadmen, a special eight-week machine course for those new foremen who need it, a sixteen-week advanced machinist course for our semi-production departments, of which eight weeks is spent in the school and eight in the department, and a twenty-six week experimental machinist course. In general, all of these courses require half of each day to be spent on shop work and half in the classroom where courses in tool theory, mathematics, blueprint reading, and small tools are given. These range from the fairly elementary level to the highly advanced, depending upon the requirements of the job for which the men are being trained. New courses are added and old ones deleted continuously as the requirements change. This school is run on a three-shift around-the-clock basis, and although this is not typical of our normal activity, having been established to take care of the present contingency, many of these courses are part of our regular training activity.

Kingsley B. Carpenter is in charge of the In-Plant Training Section which conducts both apprentice programs and those parts of the advanced, experimental or semi-production department programs which are conducted in the shop itself. We are also operating an eighteen-week drafting course and a six-week tracing course under this section of the department. A tool-design course is now in preparation and a course for process planners is under consideration. There are also a multitude of short-term, specialized courses designed to cover particular needs as they arise. In this category are courses in magnetic particle inspection, fluorescent penetrant inspection, the setup and operation of specialized equipment such as optical comparators and resistance welders, and other courses such as electronics, hydraulics, physics, and flat pattern layout.

Jesse A. Brainard is in charge of the third section which covers Supervisory Training. At the present time, its largest project is the three-week foreman orientation course which covers thirty-two different subjects, among which are the principles of industrial organization, communications, human relations, materials control, employment procedures, the Taft-Hartley Act, the Union contract, wage administration, the grievance procedure, wage and hour laws, Workmen's Compensation and other insurance matters, quality control, quality review, plant protection, time study, job analysis and classification, the woman employee, timekeeping, and health and safety. Simultaneously, part-time courses are held for all the foremen from time to time. Usually these are scheduled for one hour per week per group, but this also varies according to the need so that meetings may be held for more than one hour or there may be more than one one-hour meeting per week.

V. Conclusions

Although it is impossible to evaluate many of the supervisory programs on a dollars-and-cents basis as can be done with the more technical courses, we are convinced that training is no luxury for us. Rather, it is an essential and integral part of our business and has proven to be an exceedingly good investment.

Many small companies have shied away from such formal types of training because it seems like an expensive addition to an already heavy overhead. We do not believe this is true. It is our opinion that information disseminated by trained instructors in a formal training atmosphere is more quickly assimilated and better retained than that given in any of the usual on-the-job programs. Even the apprentice programs, which take three or four years to complete, pay immeasurable dividends in later years. Our experience has demonstrated that without an ample training program the aircraft industry could not begin to accomplish what it has.

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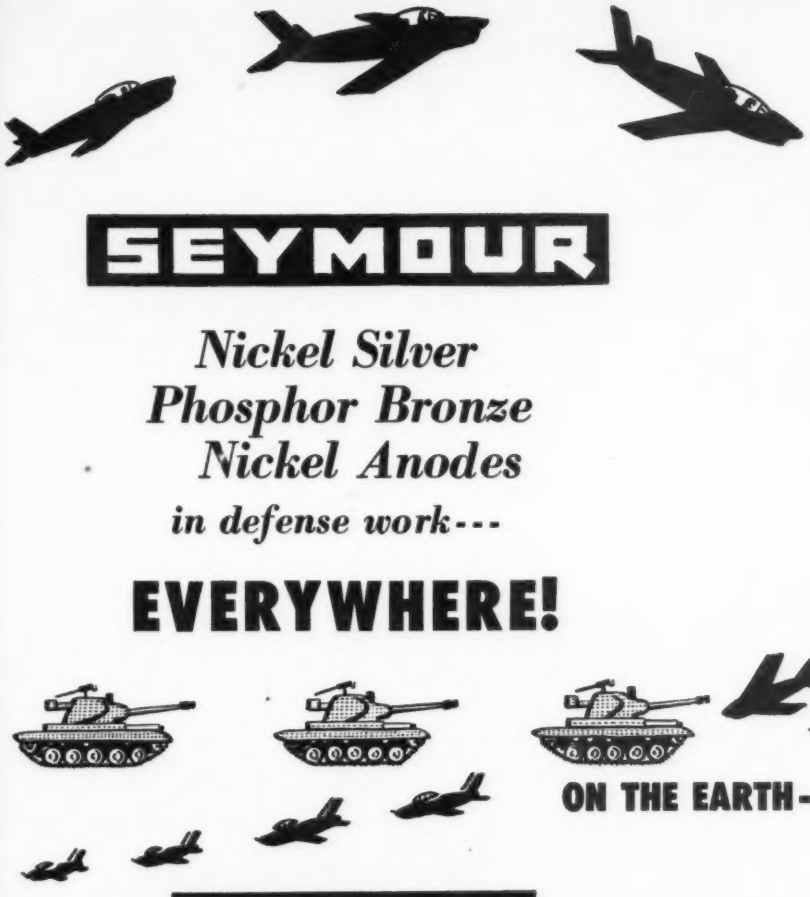

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